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Why an EU Referendum? Why in 2016? *

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Abstract

The outcome of the UK's Brexit Referendum has been blamed on political factors, such as concerns about sovereignty, and economic factors such as migration, and trade integration. Analyses of the cross-sectional referendum voting pattern cannot explain how anti-EU sentiment built up over time. Since UKIP votes in the 2014 EU Parliament elections are the single most important predictor of the Vote Leave share, understanding the rise of UKIP might help to explain the role of political and economic factors in the build-up of Brexit. This paper presents new stylized facts suggesting that UKIP votes in local, national and European elections picked up dramatically in areas with weak socio-economic fundamentals, but only after 2010, at the expense of the Conservatives, and partly also Labour. The timing suggests that the Government's austerity measures might have been a crucial trigger that helped to convert economic grievances into UKIP votes, putting increasing pressure on the Conservatives to hold the EU Referendum.

Keywords: Political Economy, Austerity, Globalization, Voting, EU

JEL Classification: R23, D72, N44, Z13

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1 Introduction

Trump's election as US President and Brexit have been cast as manifestations of the political cost of globalization. Autor et al. (2016), Che et al. (2017), Colantone and Stanig (2017) and Dippel et al. (2015) present evidence suggesting that trade integration with China and other low income countries was an important causal driver for electoral outcomes in the US, the UK and Germany. But since each of these countries experienced significantly different domestic economic and political developments, each country merits special attention.

Why did the UK hold an EU Referendum? Why did it take place in 2016 and not before? Cross sectional analyses of the Brexit vote pattern cannot give an answer to these central questions.[1] The evolution of the political landscape in the UK over time in relation to longer-standing economic developments such as trade integration, migration and structural transformation may be of particular relevance to understanding both why the EU referendum took place *when* it did and *why* it culminated in a victory for the Leave side.

In this paper, we highlight dramatic changes in the political landscape in the UK in the years 2010 - 2015. We collect novel data on the universe of all elections in the UK between 2000-2015 prior to the referendum. In particular, data on local council elections gives us high frequency *annual* variation across the UK due to the rotating fashion by which councillors get elected. We focus on the electoral performance of the UK Independence Party (UKIP). UKIP vote shares in the 2014 EP elections have been identified as the single most important correlate of support for Leave in several thorough cross-sectional analyses of the referendum results (see Becker et al., 2017; Goodwin and Heath, 2016 and Figure 1).[2] We document that the EU referendum was precipitated by a dramatic expansion in electoral

[1] Carl et al. (2017) pose a somewhat related question asking why the UK (of all EU countries) voted to leave, and why not sooner than 2016. Their focus is on variation across *countries* over time.

[2] See Hobolt and de Vries (2016) for an EU-wide study of the impact of the crisis on the Eurosceptic vote in the 2014 European Parliament elections.

support for UKIP in places with weak socio-economic fundamentals. For instance, regions with a larger baseline share of residents in 'routine jobs', with a larger share of 'low-educated', and with higher employment shares in sectors that are considered most vulnerable to competition from manufacturing goods imports, structural transformation, automation and competition from low skill migrants all see an acceleration in support for UKIP, yet *only after 2010*.

The observation that political support for UKIP grew only distinctly *after 2010* is crucial to qualify observations made by important contributions in the existing literature. Factors such as import competition (Colantone and Stanig, 2017) and the globalization-induced growth in job insecurity (Scheve and Slaughter, 2004), offshoring (Grossman and Rossi-Hansberg, 2008), structural transformation (Rogerson, 2008), the rise of automation (Graetz and Michaels, 2018) and most migration processes are generally seen as secular economic trends. Hence, one would expect any political fallout from these processes to evolve slowly, especially if the economy and the welfare state are sufficiently able to accommodate those losing out from such major trends, either through providing employment in other sectors, through retraining or skilling-up, or through provision of transfer payments.

Where are UKIP voters coming from? Within the same difference-in-differences estimation, we document that the growth of UKIP votes after 2010 came mostly at the expense of the Conservative Party and to a lesser extent also at the expense of Labour. This coincides with earlier cross-sectional work suggesting that UKIP drew its supporters from two pools of voters: more affluent and middle-class "strategic defectors" from the Conservative party who identify with UKIP's Euroskeptic platform, while also attracting economically struggling, working-class voters from traditional Labour backgrounds (see Ford et al., 2012). For the latter, Ford et al. (2012) document that economic concerns and general measures of Euroskepticism are closely correlated. The observation that UKIP was eroding popular support for the Conservatives suggests that the risk of splitting voters be-

tween UKIP and the Conservatives could give rise to electoral gains for Labour in contested constituencies, which is one prominent explanation why the Conservative party adopted a more Euroskeptic platform early on to try to prevent being further cannabilized by UKIP.

What could explain the rapid growth in support for UKIP after 2010 in areas with weak socio-economic fundamentals? In the wake of the global financial crisis, the coalition government that came to power in 2010 introduced wide-ranging austerity measures to reduce government spending at all levels of government. This resulted in an unprecedented *withdrawal* of the welfare state. At the level of local authority districts, which are responsible for administering most welfare programs and provide many services, spending per person is estimated to have fallen by 23.4% in real terms between 2010 and 2015, with the sharpest cuts in the poorest areas (Innes and Tetlow, 2015) due to the mechanics of most of the cuts. Our paper suggests that the temporal link between vulnerability to globalization, austerity and UKIP votes is suggestive enough to encourage further research to disentangle the relative importance of either channel.

Our observations are *complementary to* the existing literature that suggests that Brexit and the wider political developments across the Western World may be a direct response to the pressures afforded by globalization. While a functioning welfare state can cushion the negative effects of globalization through transfer payments to the globalization losers, welfare cuts may do the opposite. Our observation that growth in support for UKIP was concentrated after 2010, and in areas with weak fundamentals most vulnerable to austerity and globalization, suggests that these austerity policies after 2010 may have been a crucial activating factor that converted existing grievances into a political backlash driving voters to UKIP.[3] The

[3]Previous work looked at related aspects, but as far as we are aware did not look at *both* the interaction of globalization shocks and austerity *and* the timing sequence, i.e. did not address the *activating* aspect of austerity. Ponticelli and Voth (2017) show that budget cuts in Europe are related to social unrest, while Galofré-Vilà et al. (2017) document that austerity is associated with the rise of the Nazi party; Rodrik (2017) suggests that austerity may be a contributing factor to the political

rapid rise of UKIP put significant pressure on the Conservative Party culminating in a Referendum "to settle the issue of British EU membership for a generation".

The next section gives a brief overview of the UK's relationship with the EU and presents our data. Section 3 presents stylized facts on correlates and timing of UKIP's political ascent. Section 4 discussed where UKIP voters came from. Section 5 highlights how the existing literature can or cannot explain those and proposes austerity as a key factor. Section 6 concludes.

2 Context and data

The Brexit vote is potentially a watershed moment in post-WWII history. A brief historical overview will give context, before we present our data sources.

2.1 The EU Referendum

Calls for an EU Referendum go back to at least the 1990s.[4] UKIP became the only single-issue party campaigning to leave the EU in 1997 and began its gradual electoral ascent into a political rival to the right of the Conservative party (Lynch and Whitaker, 2013).[5] Electoral pressures from UKIP induced Conservatives to adopt anti-EU stances: in March 2009, the Conservatives left the centre-right block in the European Parliament to join forces with a group of right wing parties, while the 2010 Conservative manifesto set out 'to bring back key powers over legal rights, criminal justice and social and employment legislation to the UK.' Despite the Conservative party's adoption of Euroskeptic tones, UKIP expanded its political support base in local and EP elections, continuing to attract defectors from the Conservatives (Webb and Bale, 2014) and economically marginalized voters that

backlash against globalization. Colantone and Stanig (2017) consider an interaction term of their import shock with a measure of fiscal cuts, but cannot tackle the timing.

[4] A more detailed discussion is relegated to Appendix A.3.

[5] In European Parliament elections, UKIP might have benefited from closed-list (instead of open-list) competition (Blumenau et al., 2017).

historically supported Labour (Ford et al., 2012). UKIP was a significant electoral force in European Elections already in 2004 and 2009, achieving around 16-17% of the popular vote, just tailing the Conservative party. In October 2012, David Cameron lost a Westminster vote on his proposed *real*-term freeze to the EU Budget, when 53 Conservative Party rebels (some of whom would later defect to UKIP) joined Labour in voting in favour of *nominal* freezes. At the same time polling data confirmed the continued rising ascent of UKIP threatening Westminster constituencies (see Appendix Figure A1). In January 2013, David Cameron announced that he would seek to renegotiate the terms of the UK's EU membership to be followed by an in-out referendum in case of a Conservative victory in the 2015 general election. We will show that UKIP's ascent came mostly at the expense of the Conservative party (and partly at the expense of Labour), and already started prior to the 2013 EU referendum announcement in areas with weak socio-economic fundamentals and continued all the way up to 2015. In the run-up to the 2015 general election, David Cameron pledged to concretely hold an EU referendum by the end of 2017. After winning the 2015 election, he set out to renegotiate the UK's relationship with the EU. In February 2016, Cameron felt to have achieved enough to be able to call and win a referendum. However, the Leave side won the Referendum on 23 June 2016,[6] and UKIP achieved what it was founded for and started its ongoing electoral decline.

2.2 Support for UKIP to proxy for anti-EU sentiment

Measuring the growth in popular support for UKIP specifically and the evolution of political preferences more generally *at a regionally disaggregated level* and over time is challenging. National elections yield infrequent measures of revealed political preferences, and the first-past-the-post electoral system favors the two biggest parties, the Conservatives and Labour, and is not well suited to capture protest

[6]For the role of campaign effects, see Goodwin et al. (2018).

voting. A further challenge with Westminster elections are changing constituency boundaries, which can only be linked over time under strong assumptions. We therefore draw on *annual* data on local council election results, yet, all our results are robust to using the Westminster or EP elections.

Local election data A key contribution of our work is that we collected data on *all* local council elections across England and Wales between 2000 - 2015. There are some local council elections in any given year somewhere across the UK, as councillors are elected in a rotating fashion. This makes local elections suitable as higher-frequency measures of political preferences across locations. We use UKIP vote shares gained in local council elections as our central outcome variable.[7]

British Election Study (BES) Micro-data from the cross-sectional BES conducted around the 2005, 2010 and 2015 general elections allow us to validate that UKIP political leanings are strong measures of anti-EU and anti-globalization sentiment. Table 1 shows that UKIP voters are far more likely to be Euroskeptic and to blame immigration for local labour market problems. UKIP voters more strongly disapprove of British EU membership (panel A), are more likely to blame the EU for UK debt (panel B), think that the EU poses a threat to British sovereignty (panel C), oppose immigration (panel D), see immigrants as taking jobs from natives (panel E), complain that too many immigrants have been let into the UK (panel F) and believe that immigrants increase crime rates (panel G).

2.3 Other data

We collect socio-economic characteristics at the level of local authority districts from UK Census Data in 2001, our baseline year. Variables are shares of the

[7] Appendix A.2 provides more institutional background; results are robust to using a balanced panel of council elections contested by UKIP, see Appendix Figure A6.

resident population with different qualification levels (e.g. 'low education'), occupation profiles (e.g. 'routine jobs') and employment shares in different sectors of the economy. All of these variables can be used to describe local areas that are economically more vulnerable, e.g. to globalization pressures. Similarly, we obtain data from the Department for Work and Pensions Longitudinal Study covering 2000 to 2015 to measure an area's reliance on the welfare state. We provide summary statistics and further detail in Appendix A.1.

3 Correlates and timing of UKIP's political ascent

We first document how weak socio-economic fundamentals affected support for UKIP over time.

Empirical specification We use the following non-parametric difference-in-differences design:

$$y_{irt} = \alpha_i + \beta_{rt} + \sum_t \gamma_t \times X_{i,baseline} + \epsilon_{irt} \quad (1)$$

where y_{irt} denotes UKIP vote shares and α_i captures local authority district fixed effects that absorb any location-specific political preferences or sentiment. Region-by-time fixed effects β_{rt} capture non-linear time trends specific to each of the eleven NUTS1 regions in England and Wales. Our main coefficients of interest are the interaction effects between a (fixed) baseline socio-economic characteristic $X_{i,baseline}$ interacted with a set of year fixed effects. We plot out the estimated coefficients $\hat{\gamma}_t$ over time to capture how UKIP differentially gained support over time. Throughout, standard errors are clustered at the district level.

Human capital Figure 2, Panel A shows that UKIP support gradually trends up as a function of the share of the resident population with low educational at-

tainment. However, the trend markedly changes *after 2010*, when UKIP support sharply rises in local authority districts with a higher population share with low educational attainment. Appendix Figure A3 shows a richer set of plots for six distinct qualification groups. Looking at magnitudes, for example, the year 2015 coefficient for the interaction with the No Qualification measure is 0.675, suggesting that the average local authority area with 28.5% of the resident population having no qualifications saw an increase in UKIP's vote share in local elections by 19.2 percentage points. This stands out: the UKIP average vote share over the years 2000–2015 is only 4.4%, but reaches highs up to 44.26%.

Socio-economic status Panel B of Figure 2 looks at routine jobs as per the Census socio-economic status classification system: UKIP support is virtually not statistically associated with the share of the resident population working in routine jobs prior to 2010, after which the correlation becomes sharply stronger. Appendix Figure A4 shows a richer set of plots for the eight distinct status groups. The results suggest that support for UKIP dramatically grew in a fashion that is correlated with the prevalence of a local economy that may be particularly vulnerable to a range of trends (some of which fostered by globalization) such as import competition (Colantone and Stanig, 2017), offshoring (Grossman and Rossi-Hansberg, 2008), structural transformation (Rogerson, 2008), automation (Graetz and Michaels, 2018) and low skilled migration (Borjas, 2003).

Local economic structure Finally, Panels C and D of Figure 2 look at retail and manufacturing employment. The manufacturing sector is of interest because of its global trade exposure and is particularly relevant as an area's exposure to import competition is generally computed using baseline manufacturing sub-sector specific employment shares. Retail is a sector represented all across the country that is not (as much) subject to global trade exposure but provides relatively low quality jobs and is subject to structural transformation due to the trend towards electronic

commerce. Areas with larger employment shares in Retail, and Manufacturing saw significant increases in electoral support for UKIP *after 2010*. Appendix Figure A5 presents a broader set of sectors, suggesting that no trend patterns emerge for areas that have a sizable Health Care or Hotel & Accommodation sector. Similar positive effects on UKIP are found for the Transportation and Construction sectors, while the opposite direction shows up for Education and Real Estate. It is natural for some sectors to have opposite trends since sector shares add up to 100%. Again, the remarkable observation is the changing UKIP support pattern *from 2010* onwards. To get a sense of the magnitude, for the Manufacturing sector (ca. 15.4% of employment in 2001), the point estimate of 0.53 in 2015 suggests that the average area saw an expansion in support for UKIP by 2015 by 8.1 percentage points. The fact that UKIP votes also respond, *after 2010*, to the *retail* employment share suggests that the underlying causal drivers behind the EU referendum vote may go *beyond* an area's exposure to import competition from low income countries.

Robustness The observed patterns are robust: we find similar results with specifications controlling for more or less demanding time-fixed effects (see Appendix Figures A7 and A8) and to alternative ways of measuring the baseline qualification or employment profiles. In particular, one relevant dimension may be to zoom in on e.g. the qualification profile only of the UK-born resident population as opposed to the qualification profile of the overall resident population. This exercise serves to zoom in on the likely electorate, which is most likely drawn from the UK-born resident population, despite citizens of EU countries being entitled to vote in local elections. These results are presented in Appendix Figure A9, suggesting that there are no differential patterns.

Lastly, we highlight that our results are robust to studying data from the European Parliamentary and Westminster elections that took place between 2000-2015. As indicated before, in particular the Westminster elections are problematic as the changing constituency boundaries and the first-past-the-post electoral system re-

quire us to make strong assumptions to construct consistent spatial units. Yet, we find very similar patterns with the results presented in Appendix Figure A10 for Westminster and Appendix Figure A11 for European Parliamentary elections.

We next explore *where* UKIP voters are coming from, documenting that the ascent of UKIP *after 2010* is associated with the Conservative party losing supporters to UKIP, and to a lesser extent the same is true for Labour.

4 Where do UKIP voters come from?

The previous section presented important reduced form evidence indicating that areas with weak economic fundamentals are supporting UKIP's electoral ascent in the short time period between 2010-2015. The EU referendum was announced in early 2013 by the Conservative Prime Minister David Cameron, on condition of winning a majority in the 2015 election. This suggests that UKIP was particularly perceived as a threat to the Conservative party.

Yet, the previous literature suggests that UKIP also attracted supporters from the Labour party. Similarly, it could be that UKIP was particularly successful in mobilizing voters that previously did not turn out to vote in elections.

We investigate these in turn.

Empirical specification We build on our previous analysis that documents that UKIP's electoral ascent post 2010 is driven by places with weak economic fundamentals. We now ask whether these fundamentals, after 2010, explain distinct moves away from other parties by estimating the following specification

$$y_{irt} = \alpha_i + \beta_{rt} + \gamma \times \text{Post 2010} \times \text{X}_{i,baseline} + \epsilon_{irt} \tag{2}$$

The only difference to the previous specification is that now, we explore a range of dependent variables y_{irt}. In addition to the UKIP vote shares, we present results

pertaining to turnout, the Conservative-, Labour- and Liberal Democrat party vote shares. Furthermore, due to space constraints, we present not the full sequence of non-parametric effects, but rather, focus on a pooled average post 2010 coefficient estimate γ to be presented in table form.

We perform the analysis at the level of local council elections, European Parliamentary elections as well as Westminster elections.

Results The results pertaining to the study of local elections are presented in Table 2. The results suggest that UKIP's growth that is captured by the weak baseline socio-economic characteristics comes mostly at the expense of Conservative party vote shares as indicated by the negative coefficients in column (3) across most proxy measures for weak-socio economic fundamentals, with the exception of the share of residents working in retail.

There is no statistically discernible effect on turnout, suggesting that places with weak socio-economic fundamentals post 2010 saw no differential voter mobilization from which UKIP could have benefited. If anything, the point estimates are negative throughout.

This analysis suggests that the Conservative party, in local elections, was losing non-negligible numbers of voters to UKIP. This is not surprising, as Conservative councillors defected to UKIP quite regularly (Webb and Bale, 2014).[8]

We obtain very similar results when studying the performance of UKIP and the other parties in the European Parliamentary election of 2014 (relative to the earlier rounds) and the 2015 Westminster election (relative to the 2001, 2005 and 2010 elections). These results are presented in Appendix Tables A3 and A4.

[8]For example, of the total stock of 77 defectors who switched parties to join UKIP, the vast majority of 56 councilors defected from the Conservative party as measured in 2014. See https://www.lgcplus.com/politics-and-policy/exclusive-tories-hit-worst-as-77-councillors-defect-to-ukip/5075787.article.

On the timing Since the EU referendum was already *announced* in January 2013, it becomes interesting to see whether the link between weak socio-economic fundamentals and UKIP votes is already present in the data prior to the announcement, in particular up to the 2012 local council elections that were held in May 2012.

We restrict the analysis to the two local election rounds in 2011 and 2012 and present the results in Table 3. The pattern is similar, but also suggests some distinct differences. We find the same positive link between weak socio-economic fundamentals and UKIP votes after 2010. It is statistically significant for two of the four indicators of weak socio-economic fundamentals: for the share of the resident population with low qualification and for the prevalence of retail employment.

There are some differences in the effects on other parties: while the Conservative party appears to be contracting in such areas, the Labour party, along with UKIP actually stands to gain. This suggests that prior to the EU referendum announcement, in local elections, a growing support for UKIP is associated with a worse performance for the Conservatives and a better performance for Labour in areas with weak fundamentals, suggesting that the perceived threat of UKIP, increasing the risk of a shift towards Labour may have been particularly strongly perceived in the run up to the January 2013 announcement.

5 Reconciling the patterns with the existing literature

Our previous analysis suggests that UKIP's dramatic electoral ascent, which came mostly at the expense of the Conservatives, may be an important reason to understand why a referendum was announced already in 2013. Yet, the underlying latent reasons for why UKIP was able to grow into a political rival in such a short period need to be reconciled with the existing literature.

What the existing literature can explain Exploiting import shocks as in Autor et al. (2016), Colantone and Stanig (2017), provide well-identified causal evidence

that an area's vulnerability to import-competition maps into dramatically higher Vote Leave shares in the 2016 EU referendum. This is consistent with our observations: a high prevalence of Manufacturing sector employment is a strong correlate of UKIP voting, which in turn, is the strongest correlate of Leave voting in the EU referendum. The correlation between the import shock measure as in Colantone and Stanig (2017) and our manufacturing sector employment share (as of 2001), has to be strong, as the cross-sectional distribution of employment in manufacturing sub-sectors is the central input in the construction of import shock measures. Figure A2 documents the significant correlation (correlation coefficient: 65.3%) between the import shock measure (and its instrument) used in Colantone and Stanig (2017) and the 2001 manufacturing employment share.

What the existing literature does not (yet) explain I The cross-sectional nature of the Referendum does not lend itself to understanding *how, when and why* globalization grievances affected the political landscape in the run-up to the EU referendum.

On the *how*, we provide complementary evidence linking globalization pressures to economic grievances, suggested but not explicitly documented in the existing literature.[9] Using the same regression specification as equation (1), Figure 3 shows how an area's reliance on the welfare state varies with the Colantone and Stanig (2017) import shock measure. The first measure is the number of claimants of income support, a benefit paid to *employed* individuals on low incomes. This number increases with an area's exposure to import competition (see left panel of Figure 3). Interestingly, the import-shock induced trend growth in benefit claimants started to reverse from 2013 onwards which, as we will discuss below, is likely due to welfare reforms.

The second measure we study, job seeker allowance, is a benefit for the un-

[9] Scheve and Slaughter (2004) relates most closely as they document that FDI flowing into sectors in the UK is associated with growing job insecurity.

employed. The trend pattern in the right panel of Figure 3 again suggests a link with an area's import shock exposure. The trend is broken in 2009 by a temporary spike in the number of claimants due to the recession following the financial crisis, which very intuitively affected manufacturing sector intensive areas most strongly. The trend reverts back to its pre-recession trajectory by 2011 and then reverses distinctly after 2013, which again coincides with the welfare reforms we describe further below.

This evidence suggests that import competition exposure is important to understand an area's growing reliance on the welfare state. This is a simple reflection of the received wisdom that globalization creates winners and losers. What this evidence fails to explain is *why* voting for UKIP only picked up after 2010. Furthermore, it is not clear whether import competition is the only mechanism driving the surge in UKIP voting after 2010.

What the existing literature does not (yet) explain II We next show that, even after controlling for non-parametric time trends in manufacturing sector prevalence and import competition, there is still robust trend growth in UKIP support *after 2010* in other baseline correlates capturing an area's vulnerability. We can estimate a version of the above reduced-form specification, which *partials out* a non-linear time trend in the prevalence of the manufacturing sector and the extent of the import shock by estimating:

$$y_{irt} = \alpha_i + \beta_{rt} + \sum_t \gamma_t \times \mathrm{X}_{i,baseline} + \sum_k \sum_t \eta_{kt} \times \mathrm{M}_{ik,baseline} + \epsilon_{irt} \tag{3}$$

where $M_{ik,baseline}$ are the baseline measures of the prevalence of the manufacturing sector in a local authority i and an area's import competition exposure taken from Colantone and Stanig (2017). The rationale is that the underlying dramatic upswing for UKIP after 2010 could all be due to the non-negligible cross correlations as e.g. manufacturing sector employment may be of the low skill type and

involve routine work.[10]

Results in Figure 4 suggest that the diverging UKIP vote patters are robust: local authorities with a higher baseline share of low-educated people, with a larger share of the workforce in routine jobs, and with a larger share working in the Retail sector turn to UKIP after 2010, even when we condition out manufacturing trends.[11] This suggests that the growth in support for UKIP after 2010 is *not only* driven by manufacturing exposure to import competition, but by a broad range of factors that are correlated with weak socio-economic fundamentals.

What might explain the surge of UKIP after 2010? Consistent with the existing literature, we have argued and shown that import competition from low income countries may be particularly relevant, as it contributed to building up globalization grievances in the UK. However, as effects go beyond the manufacturing sector, other developments such as migration, technological progress, urbanization and ongoing structural transformation are likely to contribute to the build-up of economic grievances. Further work is needed to understand the relative importance of these factors contributing to economic grievances. Yet, the *timing pattern* of the rise of UKIP casts doubt on whether these developments *per se* are sufficient as an explanation.

What could explain the rapid growth in electoral support for UKIP *after 2010*? In the wake of the global financial crisis, the coalition government that came to power after the May 2010 General Election introduced wide-ranging austerity measures that started to take effect with the start of the new fiscal year in April 2011. The cuts amounted to an *unprecedented withdrawal* of the welfare state. At the level of local authorities, which are responsible for administering most welfare programs and manage a wide range of services, spending per person is estimated to

[10] Appendix Figure A13 documents the non-negligible cross-correlations.

[11] Appendix Figures A14, A15 and A16 show that conditioning out manufacturing provides similar patterns across the full set of baseline characteristics.

have fallen by 23.4% in real terms between 2010 and 2015. The extent of cuts varied dramatically across areas, ranging from 46.3% to 6.2% with the sharpest cuts in the poorest areas (Innes and Tetlow, 2015). The overall financial loss per working age adult and year varies between GBP 914 in Blackpool and GBP 177 in the City of London.

Causal identification of the austerity shock's effect on political outcomes remains a central challenge: many cuts were applied across the board, affecting the population of recipients in a proportional fashion. For example, the switch in inflation indexing from the Retail Price Index (RPI) to the Consumer Price Index (CPI) in 2010 is estimated to have cut benefits payments in real terms by around 5% by 2012-2013 already. Further austerity measures reduced benefit payments by changing eligibility criteria, such as the assessment base. For example, job seeker allowance was effectively cut for young adults searching for a job while still living with their parents; other benefits that are typically granted to low income households, such as housing benefits or council tax reductions were significantly cut back.[12]

Not surprisingly, Figure 5 documents that our baseline measures for routine work and low educational attainment are strong cross-sectional correlates of the extent of benefit receipt in 2010 (before the cuts).

Our analysis presents the government's austerity measures as *one* prominent candidate explanation for the change in the political landscape in the UK, but we would like to stress that the evidence in this paper is explicitly reduced form and does not claim causality and there could be other explanations. For example, UKIP might have been able to activate votes in areas vulnerable to globalization grievances merely by targeted campaigning, independent of the actual cuts. In particular, UKIP's anti-EU rhetoric in the wake of the crisis of the Eurozone may have resonated more with individual voters who blame the EU for UK debt and (too)

[12] Liberini et al. (2017), in a cross-sectional analysis using Understanding Society survey data, suggest that financial grievances are a significant correlate of Vote Leave preferences.

high immigration, as we documented in Table 1 (see Bechtel et al. (2014) for related work). The improved effectiveness of campaigning through the use of technology may have been able to mobilize previously disenfranchised voters. Similarly, the political reaction to austerity and welfare cuts may strongly depend on the voter's redistributive preferences (Alt and Iversen (2017); Bechtel et al. (2014)), which itself may be endogenous to globalization-induced individual employment histories.

Hellwig (2008) suggests that an increased salience of non-economic issues in politics, such as identity, may be a direct consequence of globalization, as market integration imposes constraints on economic policy making. UKIP may have benefited by making such non-economic topics salient through their campaign. Similarly, the growth in UKIP may be directly driven by the financial crisis and the ensuing recession. This observation would be consistent with existing work suggesting that short-lived recessions are associated with political swings to the right (Lindvall, 2017).

Work with panels of individual-level survey data promises to be fruitful to help disentangle the effects of different types of exposure to economic shocks, such as import competition, immigration, skill-biased technological change and automation. It will help explain the build-up of grievances and how these *interact* with an individual's exposure to austerity. The set of austerity measures we identified in Appendix Figure A17 together with Appendix Tables A5 and A6 are likely to be an important ingredient of any such analysis.

6 Conclusion

The mushrooming literature trying to understand the Brexit vote pattern is constrained by its cross-sectional nature. Many studies only present correlational patterns. One seminal study showing convincing evidence of a *causal* effect of the China trade shock on Vote Leave shares is Colantone and Stanig (2017). How-

ever, all studies of the Brexit vote pattern take as given the fact that there was a referendum in the first place, and that it took place in 2016.

Our paper shows suggestive evidence *why* the Referendum happened, and why *in 2016*. We argue that the increasing success of UKIP after 2010 forced David Cameron's hand to propose a referendum. Among the possible explanations that can explain why UKIP *continued to surge ahead*, even after the EU referendum announcement of David Cameron in January 2013 may lie in the vast set of austerity measures that were introduced and started to take effect with the start of the fiscal year in April 2011. Further significant welfare cuts took effect in April 2013 and hit areas with weak socio-economic fundamentals, which were vulnerable to globalization pressures, more strongly.

We believe that our study is an important qualifier to existing empirical work which is silent about the 'delay' in support for UKIP, despite many of the economic explanations relying on rather secular economic trends that developed over a long time period. Understanding the full causal chain of the interaction between globalization grievances and domestic politics is an important area for future research.

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Table 1: Validation of UKIP vote as measure of anti-EU and anti immigration sentiment

	(1)	(2)	(3)
Panel A: (Strongly) disapprove of British EU membership [2005, 2010, 2015]			
(Will) vote for UKIP	0.450***	0.457***	0.460***
	(0.030)	(0.031)	(0.033)
Mean of DV	.331	.345	.352
LGA Districts	270	226	198
Respondents	7295	4958	4440
Panel B: (Strongly) agree EU is responsible for UK debt [2015]			
(Will) vote for UKIP	0.138***	0.142***	0.158***
	(0.034)	(0.036)	(0.037)
Mean of DV	.265	.276	.286
LGA Districts	209	181	155
Respondents	2019	1718	1519
Panel C: (Strongly) disagree that EU threat to British sovereignty is exaggerated [2005]			
(Will) vote for UKIP	0.324***	0.312***	0.253**
	(0.080)	(0.101)	(0.117)
Mean of DV	.31	.327	.326
LGA Districts	104	69	59
Respondents	4296	2454	2204
Panel C: Immigration is not good for economy [2005, 2010]			
(Will) vote for UKIP	0.396***	0.356**	0.355*
	(0.147)	(0.172)	(0.184)
Mean of DV	3.03	3.04	3.07
LGA Districts	191	147	128
Respondents	4702	2975	2689
Panel C: Immigrants take jobs from natives [2005, 2010]			
(Will) vote for UKIP	0.447***	0.453**	0.382**
	(0.151)	(0.189)	(0.175)
Mean of DV	3.03	3.06	3.08
LGA Districts	190	146	127
Respondents	5096	3104	2795
Panel D: Yes, too many immigrants have been let into this country [2015]			
(Will) vote for UKIP	0.255***	0.258***	0.254***
	(0.016)	(0.016)	(0.015)
Mean of DV	.73	.731	.751
LGA Districts	209	181	155
Respondents	2019	1718	1519
Panel E: (Strongly) agree immigrants increase crime rates [2005, 2010]			
(Will) vote for UKIP	0.293***	0.275***	0.260***
	(0.061)	(0.071)	(0.075)
Mean of DV	.44	.462	.468
LGA Districts	191	147	128
Respondents	4690	2963	2677
Sample	All	England	Not London
Respondent controls	Yes	Yes	Yes
Region x Year FE	Yes	Yes	Yes

Notes: Table reports results from a OLS regressions on variables obtained from the 2005, 2010 and 2015 British Election Study. The years in which data is available for respective question is presented in parenthesis. All regressions control for respondent age, gender, an indicator of whether the respondent has no formal qualifications, a quadratic in age and an interaction with the education indicator and age. Standard errors clustered at the Local Government Authority District Level are presented in parentheses, stars indicate *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 2: Where do UKIP voters post 2010 come from? Studying local elections

			Other parties		
	UKIP	Turnout	Con	Lab	LD
	(1)	(2)	(3)	(4)	(5)
Panel A: No qualifications					
Post 2010 x Pop. share with No qualifications (2001)	42.746***	-2.326	-25.067***	-0.226	-3.668
	(5.257)	(4.373)	(5.432)	(6.508)	(6.392)
Local election districts	345	345	345	345	345
Observations	3259	3258	3259	3259	3259
Panel B: Routine jobs					
Post 2010 x Working age Pop share working in Routine occupations (2001)	70.572***	-8.372	-37.275***	-15.666	19.746
	(11.375)	(8.452)	(11.182)	(12.075)	(13.700)
Local election districts	345	345	345	345	345
Observations	3259	3258	3259	3259	3259
Panel C: Retail					
Post 2010 x Working age Pop share working in Retail (2001)	109.098***	-3.445	-41.989***	-36.801**	25.956
	(13.794)	(8.552)	(11.774)	(16.580)	(16.126)
Local election districts	345	345	345	345	345
Observations	3259	3258	3259	3259	3259
Panel D: Manufacturing					
Post 2010 x Working age Pop share working in Manufacturing (2001)	24.164***	-7.087	-7.246	-2.400	18.796*
	(6.398)	(5.710)	(7.592)	(8.012)	(9.786)
Local election districts	345	345	345	345	345
Observations	3259	3258	3259	3259	3259

Notes: All regressions control for local authority district and NUTS1 region by time fixed effects. Standard errors are adjusted clustering at the local authority district level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3: Where do UKIP voters post 2010 come from? Studying local elections *prior to 2013*

			Other parties		
	UKIP	Turnout	Con	Lab	LD
	(1)	(2)	(3)	(4)	(5)
Panel A: No qualifications					
Post 2010 x Pop. share with No qualifications (2001)	9.630**	-6.431	-21.595***	23.928***	-6.244
	(3.802)	(4.616)	(6.029)	(7.328)	(6.646)
Local election districts	345	345	345	345	345
Observations	2612	2612	2612	2612	2612
Panel B: Routine jobs					
Post 2010 x Working age Pop share working in Routine occupations (2001)	9.723	-15.657*	-30.527**	35.622***	9.399
	(7.610)	(8.801)	(12.041)	(13.635)	(13.934)
Local election districts	345	345	345	345	345
Observations	2612	2612	2612	2612	2612
Panel C: Retail					
Post 2010 x Working age Pop share working in Retail (2001)	30.152***	-10.296	-17.581	11.671	17.527
	(10.990)	(8.616)	(12.753)	(20.722)	(16.993)
Local election districts	345	345	345	345	345
Observations	2612	2612	2612	2612	2612
Panel D: Manufacturing					
Post 2010 x Working age Pop share working in Manufacturing (2001)	2.378	-4.348	0.212	17.115**	12.985
	(3.454)	(5.329)	(7.044)	(8.480)	(9.530)
Local election districts	345	345	345	345	345
Observations	2612	2612	2612	2612	2612

Notes: All regressions control for local authority district and NUTS1 region by time fixed effects. Standard errors are adjusted clustering at the local authority district level with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

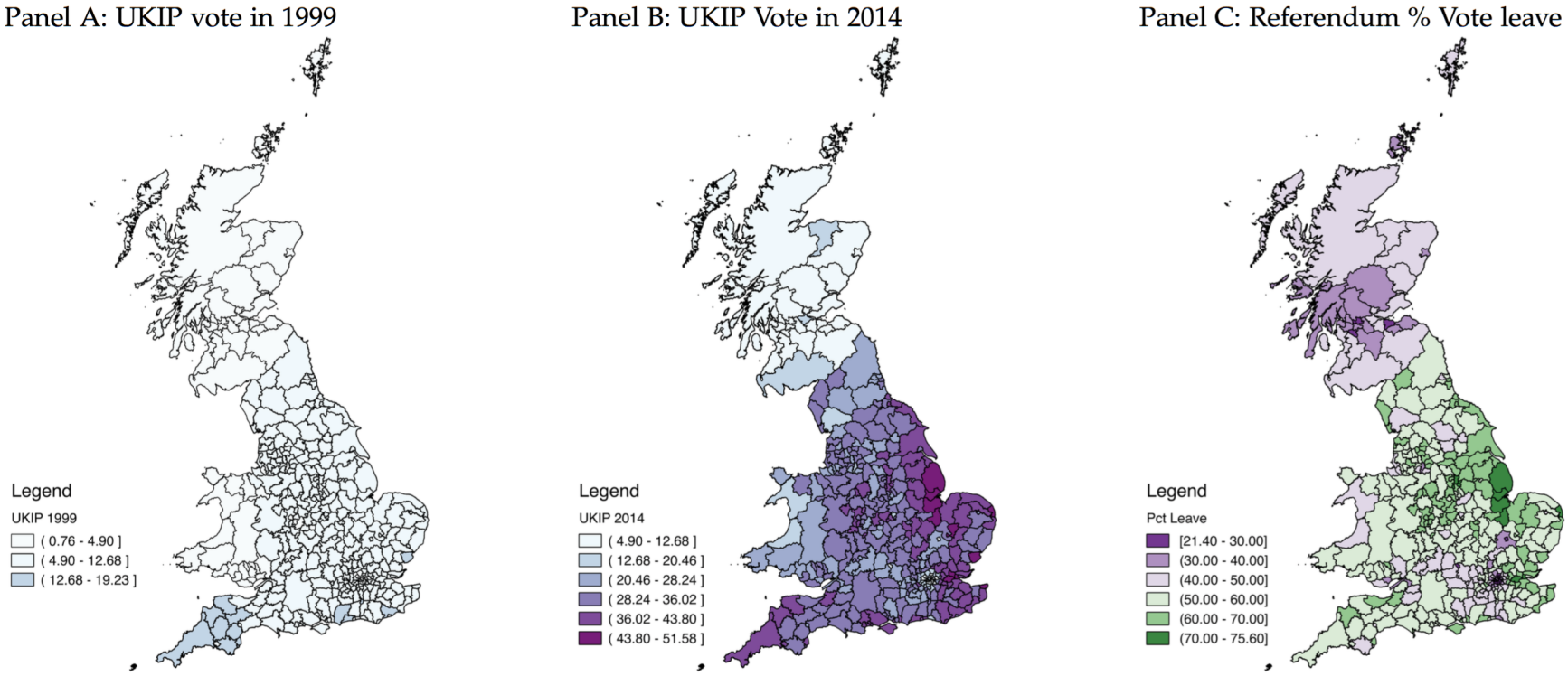
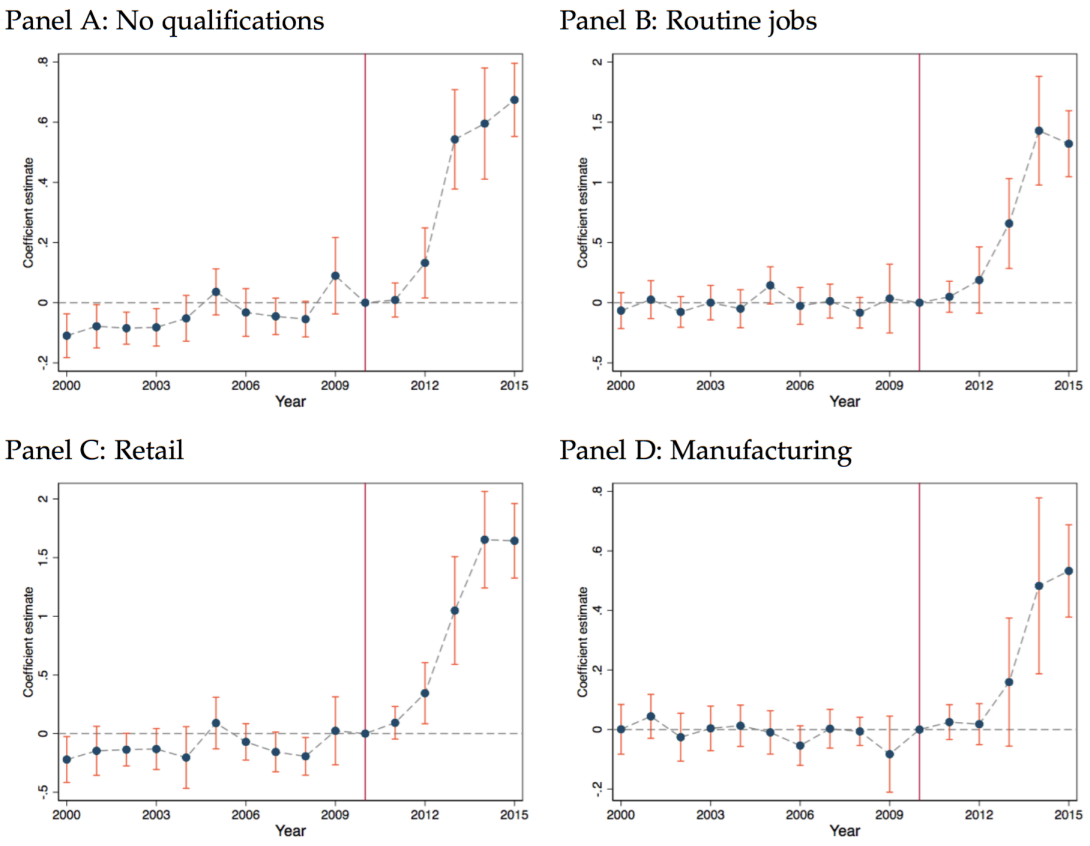


Figure 1: This map displays the UKIP vote share in the European Parliamentary elections in 1999 and 2014 (left and center), as well as the share of the electorate that voted leave in the 2016 EU referendum across local authority districts (right).

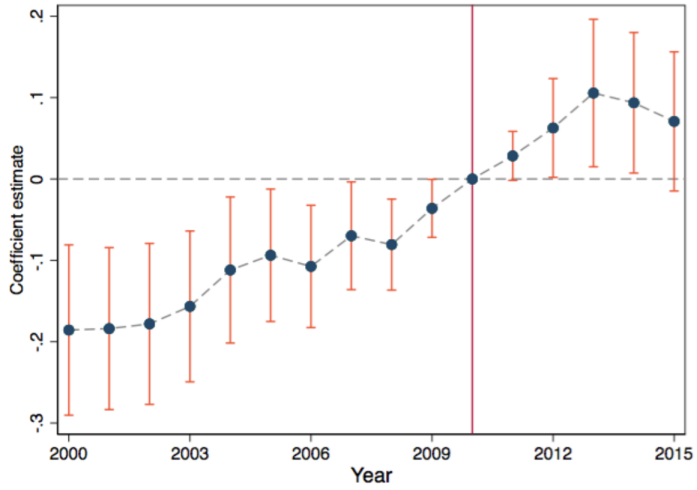
Figure 2: Non-parametric effect of educational qualification, socio-economic status, and sectoral employment of the resident population as of 2001 on support for UKIP over time



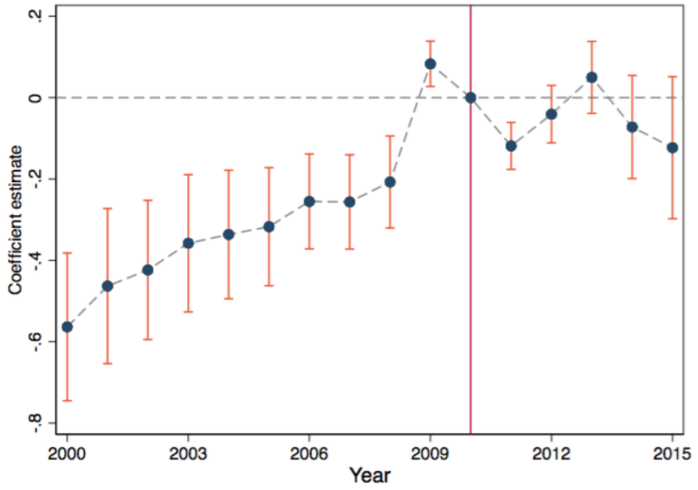
Notes: The dependent variable is the percentage of votes for UKIP in local council elections. Panel A uses the share of the resident population with no formal qualifications as of 2001. Panel B uses the share of the resident population in Routine jobs as per the National Socio-Economic Classification of Occupations as of 2001. Panel C uses the share of the resident working age population employed in the Retail sector, while panel D uses the share of the resident working age population employed in Manufacturing. The graph plots point estimates of the interaction between these cross sectional measures and a set of year fixed effects. All regression include local authority district fixed effects and NUTS1 region by year fixed effects. Standard errors are clustered at the district level with 90% confidence bands indicated.

Figure 3: Import shock measure as per Colantone and Stanig (2017) and the growing reliance on the welfare state

Panel A: *Income support claimants*



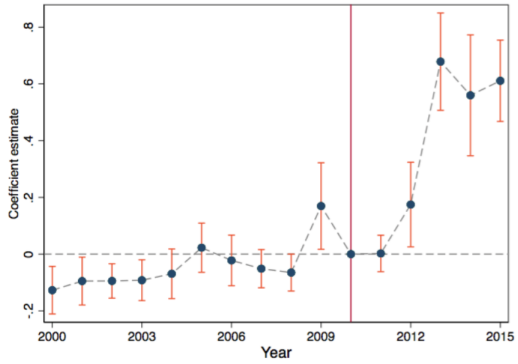
Panel B: *Job seeker allowance claimants*



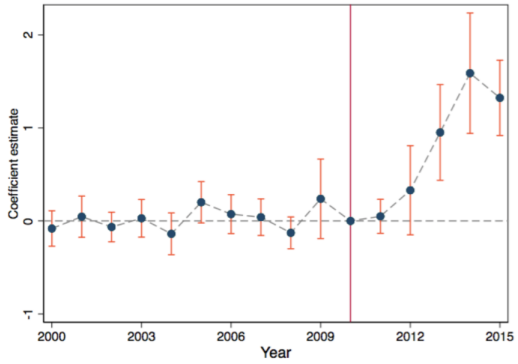
Notes: The dependent variable in the left panel is the log of the number of income support claimants per capita, while the right panel depicts the log of the number of job seeker allowance claimants per capita. The independent variable is the Colantone and Stanig (2017) import shock measure interacted with a set of year fixed effects for which we plot the estimated coefficients. The regression includes local authority fixed effects and NUTS1 region by year fixed effects. Standard errors are clustered at the district level, with 90% confidence bands indicated.

Figure 4: Non-linear time trend in support for UKIP *after partialing out non-linear trend in baseline manufacturing sector prevalence and import-shock*

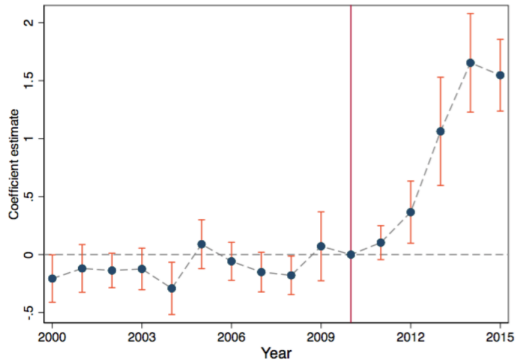
Panel A: No qualifications



Panel B: Routine jobs

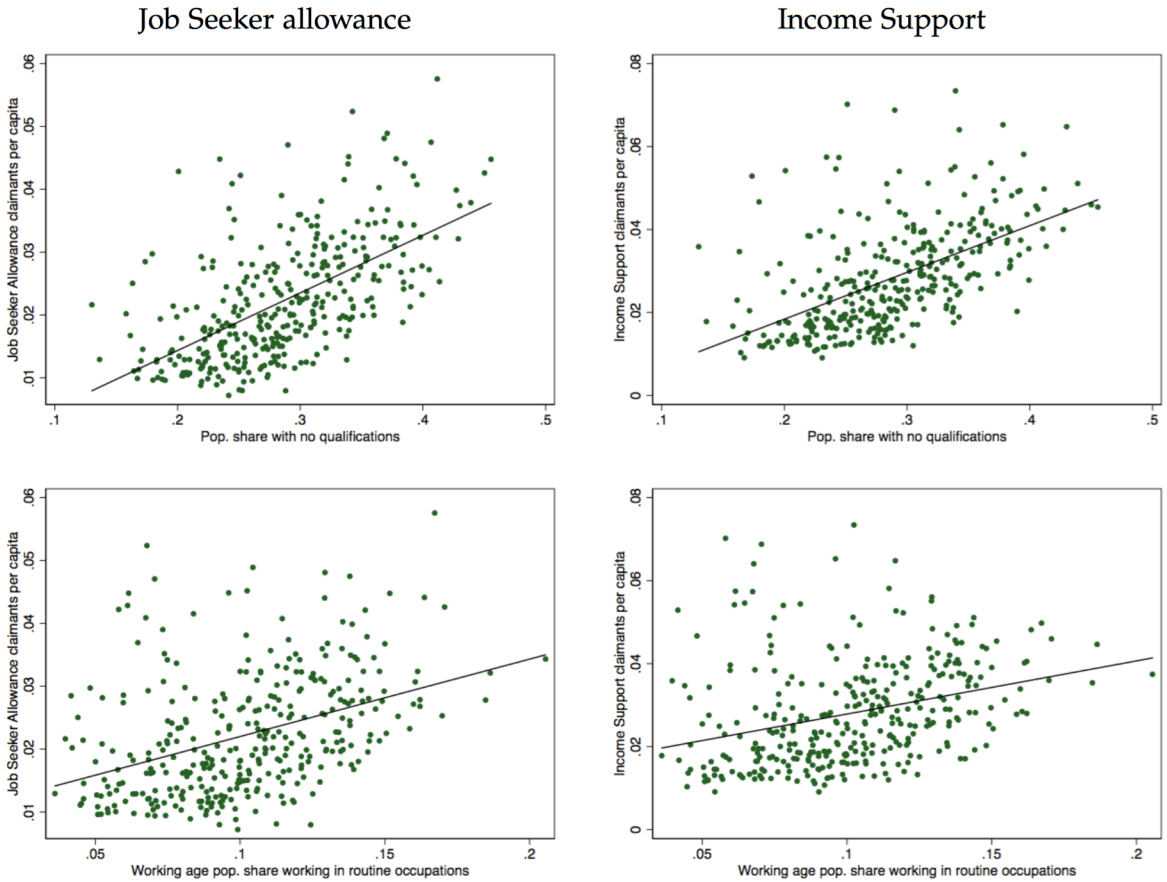


Panel C: Retail



Notes: The dependent variable is the percentage of votes for UKIP in local council elections. Panel A uses the share of the resident UK born population with no formal qualifications as of 2001. Panel B uses the share of the UK born resident population in Routine jobs as per the National Socio-Economic Classification of Occupations as of 2001. The graph plots point estimates of the interaction between these two cross sectional measures and a set of year fixed effects. All regression include local authority district fixed effects and NUTS1 region by year fixed effects, in addition to year effects interacted with the baseline size of the manufacturing sector in terms of employment as of 2001. Standard errors are clustered at the district level with 90% confidence bands indicated.

Figure 5: Correlations between vulnerability to fiscal cuts in 2010 and baseline local area characteristics:



Notes: Scatter plots of the correlation between the share of the resident population that receives Job seeker allowance (left panel) and Income support (right panel) in 2010 and two baseline socio-economic characteristics of an area: the share of the resident population with no qualifications (top) and the share of the working age population working in routine occupations (bottom). The strong positive correlation suggests that our cross sectional measures of vulnerability are very likely to pick up an area's exposure to changes in the generosity of the welfare system.

Appendix to "Why an EU Referendum? Why in 2016?"

For Online Publication

Sascha O. Becker Thiemo Fetzer

March 29, 2018

A Data Appendix

A.1 Main variable description

Summary statistics of the main variables used are presented in Appendix Table A2.

The dependent variable throughout is a measure capturing the vote share of UKIP in the respective local election, measured at the Local Authority District level. This defines an unbalanced panel at the local authority level. The panel is unbalanced as not all districts have a council election in every year. More detail about the electoral rule in place across districts is presented in appendix A.2.

The only UKIP seat in Parliament ever came from a defector from the Conservative Party, who then won his re-election in the 2015 election as a UKIP candidate, before leaving UKIP again in March 2017.

The second main set of time-varying variables is two proxy measures for the demand for benefits. In particular, we measure the population share of claimants of job seeker allowance and income support. Jobseeker's Allowance (JSA) is an unemployment benefit paid to people who are unemployed and actively seeking work. It is part of the social security benefits system and is intended to cover living expenses while the claimant is out of work. In January 2018, 823,000 individuals claimed Job seekers allowance.

Income Support is a means tested income-related benefit for some people who are on a low income. Claimants of Income Support may be entitled to certain other benefits, for example, Housing Benefit, Council Tax Reduction, Child Benefit, Carer's Allowance, Child Tax Credit and help with cost of health care. In the latest

data pull published in February 2018, there were an estimated 590,000 claimants of income support.

The data has been obtained from the Department for Work & Pensions and is available as a balanced panel at the Local Authority District level covering the period from 2000 to 2015.

Lastly, we rely on a range of cross-sectional features that have been obtained from the 2001 Census through the Office of National Statistics. In particular, we have detailed tabulation of the local employment structure, the skill composition and the socio-economic status of the occupations. These are measured for the whole 2001 baseline resident population, but can also be constructed to zoom in on the UK born resident population to give a sharper view of the likely electorates' characteristics.

The UK census distinguishes between four types of educational attainment: No qualifications (meaning no fin- ished second school), Level 1 (meaning some secondary schooling), Level 2 (advanced secondary schooling), Level 3 (typical requirement for entry to University), and Level 4 plus (at least an undergraduate university degree) in addition to Other Qualifications, which typically includes foreign degrees and Apprenticeships.

The NS-SEC has been constructed to measure the employment relations and conditions of occupations according to the scheme proposed by Goldthorpe and Jackson (2017). The classification scheme distinguishes two main groups of employment. The first one is composed of managers and professionals, while the second group can broadly be classified as "the working class". Occupations belonging to the first group are characterized by their high and secure incomes that rise progressively as careers develop, by the authority that the exercise in their work organization and by the discretion they enjoy. This contrasts with work relationships in the working class, which are characterized by low trust with terms and conditions of work strictly contractual. Jobs in that category are inherently less secure and unemployment risks higher, with limited career prospects and most employees are not responsible for the work of any other staff. The two main categories are subdivided into a total of eight classes.

We measure the share of the resident population belonging to each type as of 2001 as baseline measure.

A.2 Council elections

The data for district elections in Great Britain is taken from The Elections Centre. It contains comprehensive data on local government elections since 1973. Since 1999, there have been several changes in local government structure, and these have been accounted for in constructing the panel.

The current local government structure includes both two-tier and single-tier components. In England, there are 27 upper-tier county councils with 201 lower-tier district councils. Additionally, there are 32 London Boroughs, the City of London, 36 metropolitan boroughs (or districts), and 55 unitary authorities (UA), all of which operate on a single-tier basis. Since 1994, there are 22 unitary authorities in Wales and 32 unitary authorities in Scotland. While most responsibilities are split between counties and districts in two-tier authorities, single-tier authorities must provide all the services . In constructing the sample, this paper includes all election results at the district council and single-tier authority level between 2000 and 2015.

Elections are organized by subdivisions of local authorities called electoral wards or electoral divisions. Each ward is represented by one or more elected councilors. Although in all cases councilors serve 4 year terms, there are three distinct systems of elections. First, elections may happen every four years for all councilors. Second, elections may happen for a third of the councilors every year, with no election in the fourth year. In this case, the fourth year is used for county council elections. Third, half of the councilors may be elected every two years . In terms of voting system, England and Wales use First Past the Post, while the Single Transferable Vote system is used in Scotland and Northern Ireland. In the analysis, a system of elections every four years starting in 2000 is treated separately from a system with elections every four years starting in 2000. Thus, all additional variation is taken into account with "election wave" fixed effects, which control for differences between authorities with different elections structures and sequences.

The main change in the structure of local government since 2000 was the introduction of nine new unitary authorities in England in 2009. These changes are summarized in the table below. In the first five county councils, the lower tier district councils were abolished, and all functions were undertaken by the new unitary authority of the same name. In Bedfordshire, Mid- and South Bedfordshire merged to form the Central Bedfordshire UA. Bedford attained UA status, having

previously been a district. In Cheshire, the unitary authority of Cheshire West and Chester was formed from the districts of Ellesmere Port and Neston, Vale Royal, and Chester. The districts of Macclesfield, Congleton and Crewe and Nantwich merged to form Cheshire East. In order to compare the regions before and after these reforms, district-level results were merged into the current UA boundaries between 2000 and 2008. There is no concern of overlap, as no district council was split to form the new unitary authorities.

A.3 The UK's pathway to the 2016 Referendum on EU membership

In June 2016, the UK voted to leave the EU. This was not the UK's first referendum on membership in the European club, as already in 1975, two years after joining the European Economic Community (EEC), the precursor of the EU, the country held its first In-Out-Referendum. Remain won a comfortable majority at the time, but Britain's relationship with the EU was often lukewarm. While the UK was strongly supportive of the Single Market, and also influential in setting up EU Regional Policy, it never joined the Euro. In fact, the UK was always skeptic of the idea of an ever closer union. Already in the 1990s there were strong calls for a Referendum on EU membership. In fact, in 1994, billionaire James Goldsmith founded the the so-called Referendum Party with the sole aim of fighting for a referendum on EU membership. Even earlier, the UK Independence Party (UKIP) was founded,[1] but initially trailed behind the Referendum Party until the early death of its founder, at which point UKIP became the UK's dominant Euroskeptic party.

While UKIP initially may have been a fringe party, it rose to become more prominent during the late 1990s and 2000s. While the UK's first-past-the post system prevented UKIP from winning seats in Westminster, it gained seats in the European Parliament in 1999, where proprotional voting is used also for UK MEPs. UKIP increased its vote share in the European Parliament and also made headway at the local level by winning seats in council elections.

When the crisis of the Eurozone started in late 2009, there were renewed calls for an ever-closer union of Eurozone members. As a result, the UK felt increasingly

[1] UKIP originated as the Anti-Federalist League, and was renamed UKIP in 1993

Table A1: Changes to district councils since 2000

County Council (before 2009)	District Councils	New Unitary Authority (After 2009)
	(Before 2009)	
Cornwall	Caradon	Cornwall
	Carrick	
	Kerrier	
	North Cornwall	
	Penwith	
	Restormel	
Durham	Cheshire-le-Street	Durham
	City of Durham	
	Derwentside	
	Easington	
	Sedgefield	
	Teeside	
	Wear Valley	
Northumberland	Alnwick	Northumberland
	Berwick-upon-Tweed	
	Blyth Valley	
	Castle Morpeth	
	Tynedale	
	Wansbeck	
Shropshire	Bridgnorth	Shropshire
	North Shropshire	
	Oswestry	
	Shrewsbury and Atcham	
	South Shropshire	
Wiltshire	Kennet	Wiltshire
	North Wiltshire	
	Salisbury	
	West Wiltshire	
Bedfordshire	Mid Bedfordshire	Bedford
	South Bedfordshire	Central Bedfordshire
Cheshire	Chester	Cheshire West and Chester
	Congleton	Cheshire East
	Crewe and Nantwich	
	Ellesmere Port and Neston	
	Macclesfield	
	Vale Royal	

strained between the idea of a two-tier EU and the wish to influence the EU's affairs. The 2010 Conservative manifesto said: 'We will work to bring back key powers over legal rights, criminal justice and social and employment legislation to the UK.' In the meantime, Euroskepticism grew as UKIP increasingly gained influenced in the national debate. Even though not represented in the House of Commons, UKIP increased its vote share in European Parliament elections and in local elections across the UK. David Cameron faced mounting pressure from within the Euroskeptic ranks of his own Conservative Party, and from UKIP, who were unhappy with the relationship between the UK and the European Union. In a speech on 23 January 2013, he announced his intention to hold an In-Out-Referendum. However, he immediately added that he did not want to see a referendum right away, but only after having renegotiated the UK's relationship with the EU. In the run-up to the 2015 general election, Cameron promised to hold an EU Referendum by 2017. This became a key selling point in the 2015 in an attempt to fight off UKIP and to unite the Conservative party. To the surprise of many, the Conservatives went on to win the general election, winning an own majority, after five years of coalition government with the Liberal Democrats. The new Conservative government immediately started negotatiations about EU Reforms that Cameron could present to the British public as steps towards repatriating powers to the UK. After achieving a settlement in February 2016, the EU Referendum was scheduled for 23 June 2016. Cameron made the announcment saying it was a 'once in a generation' decision. UKIP achieved its aim of forcing an EU Referendum and has since been in decline.

B Appendix Figures and Tables

Figure A1: Opinion polling for Westminster elections over time

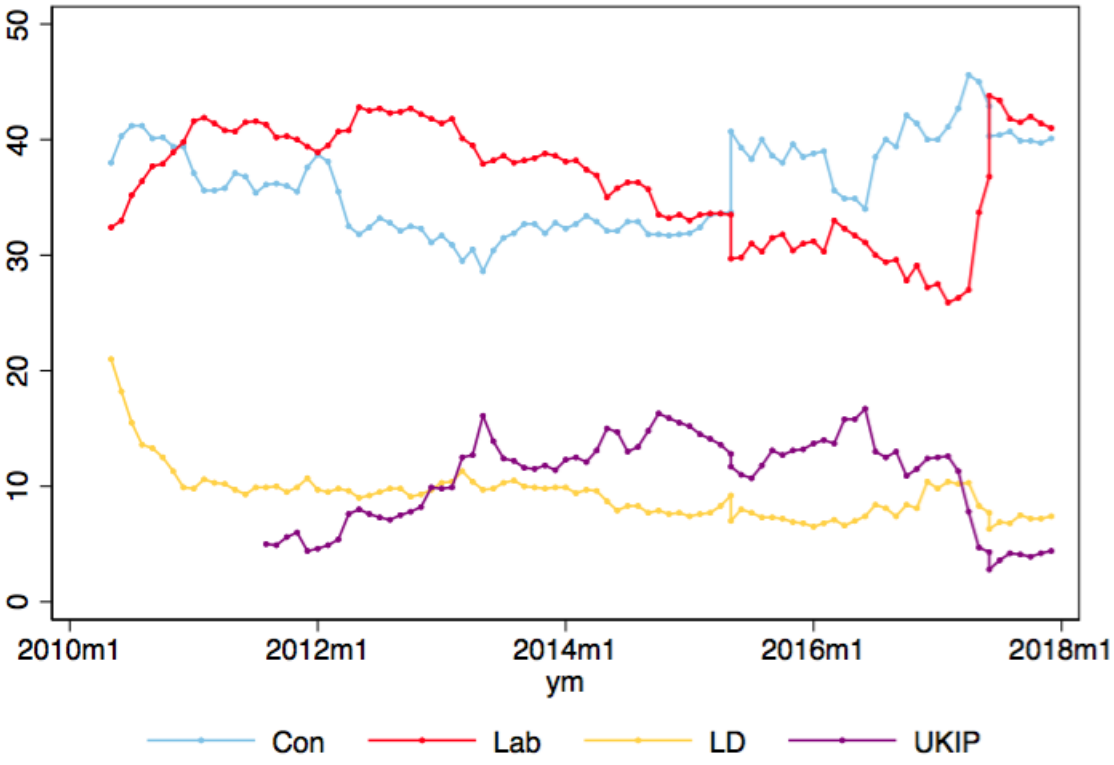
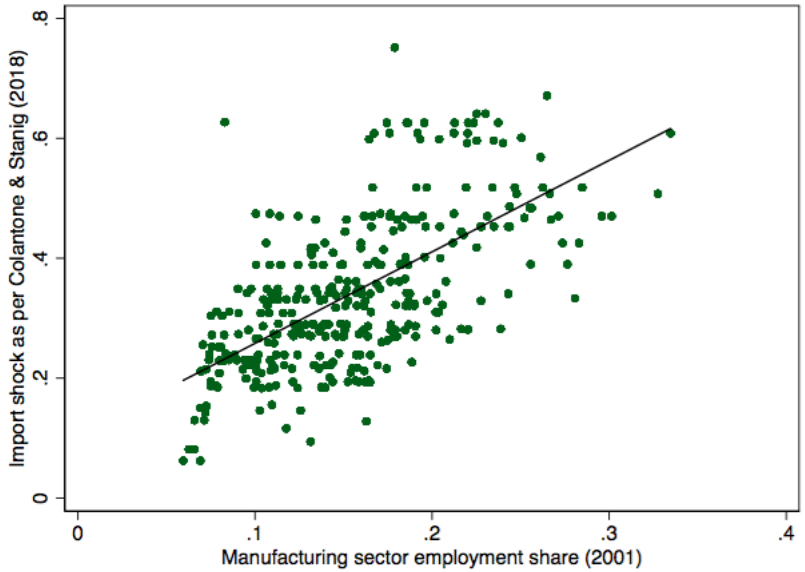
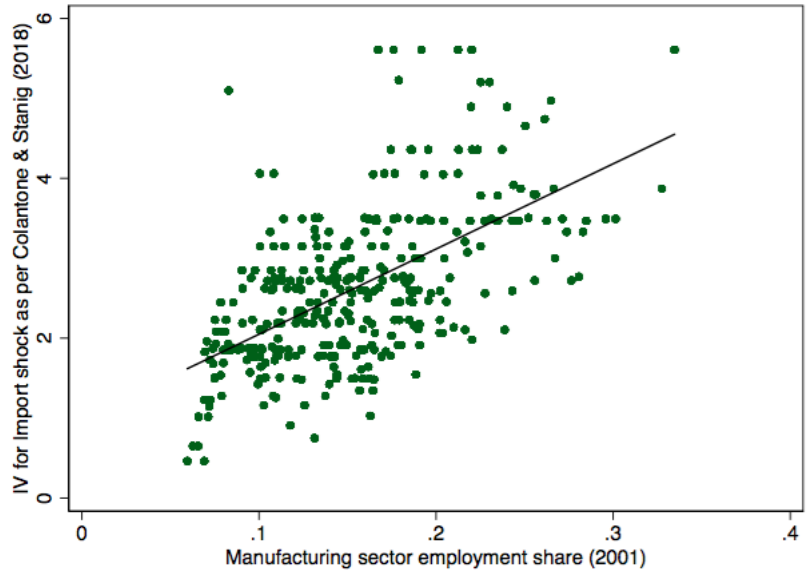


Figure A2: Scatter plot of the Import shock measure as per Colantone and Stanig (2017) and the size of the Manufacturing sector as of 2001

Panel A: Import shock

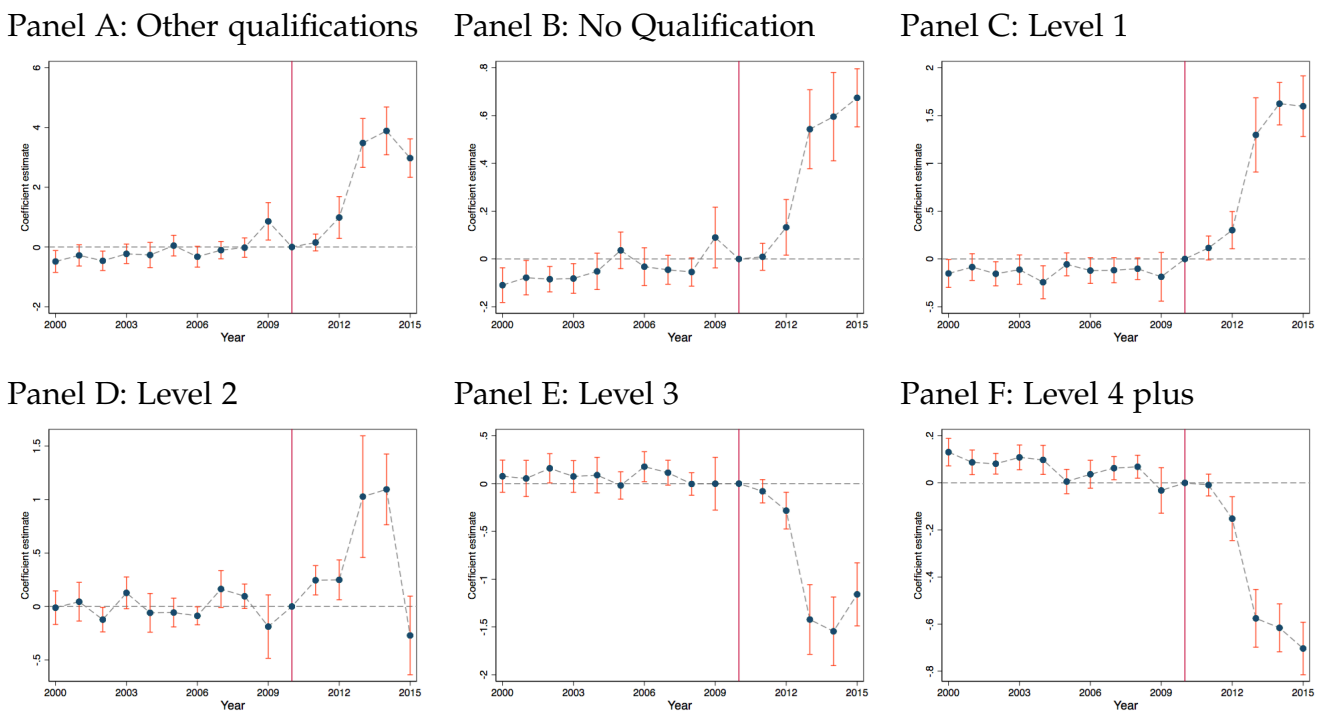


Panel B: Instrument for Import shock



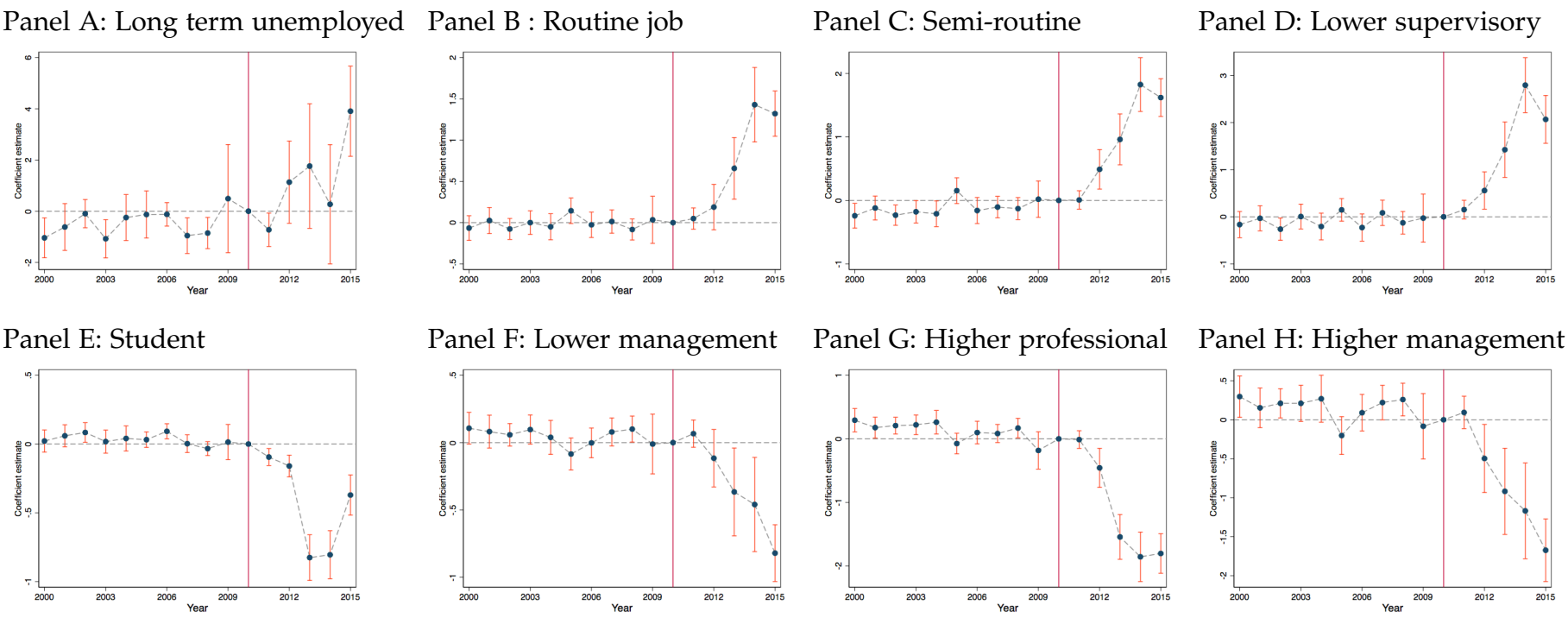
Notes: The import shock measure is originally reported at the level of 167 NUTS3 regions, while our manufacturing sector size measure is available across the 380 local authority areas. The import shock measure was upscaled using the cross walk linking the 2001 census wards with the NUTS3 and the local authority profiles.

Figure A3: Non-parametric effect of educational qualification of the resident population in 2001 on support for UKIP over time



Notes: The variable is the respective share of the resident population in a local authority district that has obtained the educational qualifications following the UK classification system, whereby No qualifications means no formal qualification or school leaving certificate, Level 1 stands for having between 1-4 General Certificate of Secondary Education (GCSE) qualifications, Level 2 stands for 5 GCSEs, Level 3 means having 2 or more A-levels (university qualifying), while level 4 or above captures having a university degree. Other qualifications includes apprenticeships and foreign qualification below a university degree. The graph plots point estimates of the interaction between these cross sectional measures and a set of year fixed effects. All regression include local authority district fixed effects and NUTS1 region by year fixed effects. Standard errors are clustered at the district level with 90% confidence bands indicated.

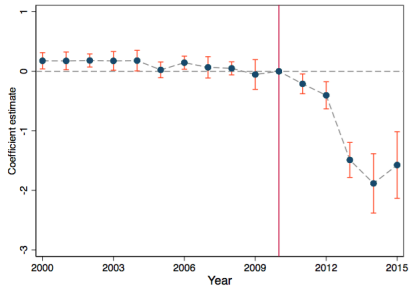
Figure A4: Non-parametric effect of socio-economic employment status of the resident population in 2001 on support for UKIP over time



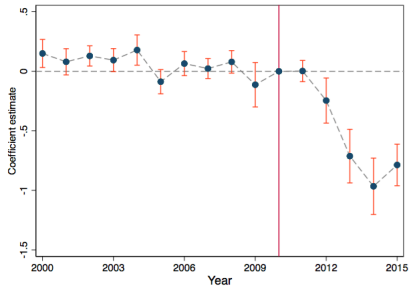
Notes: The variable is the respective share of the resident population in a district that is in either socio-economic status classification as of 2001. The graph plots point estimates of the interaction between these cross sectional measures and a set of year fixed effects. All regression include local authority district fixed effects and NUTS1 region by year fixed effects. Standard errors are clustered at the district level with 90% confidence bands indicated.

Figure A5: Non-parametric effect of the industry employment structure in 2001 on support for UKIP over time

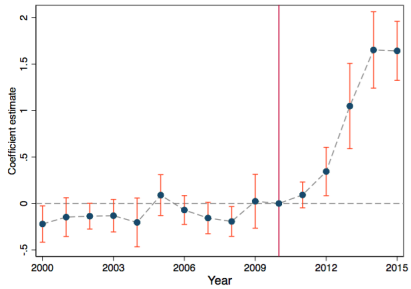
Panel A: Education



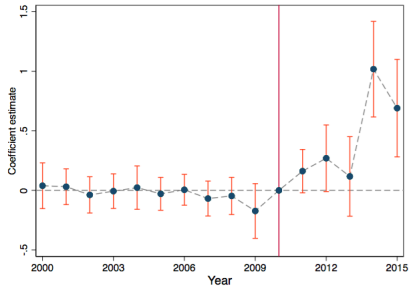
Panel B: Real Estate



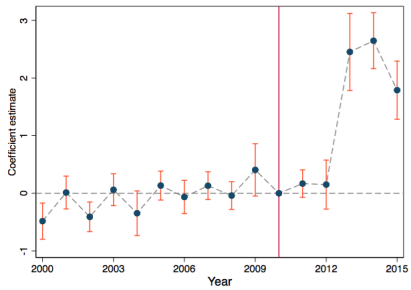
Panel C: Retail



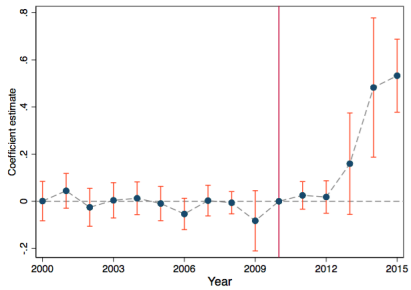
Panel D: Transport



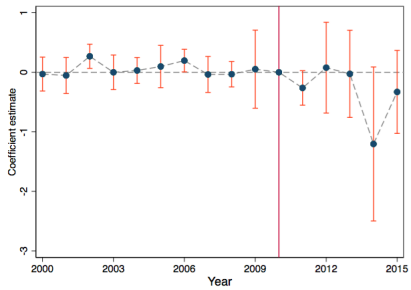
Panel E: Construction



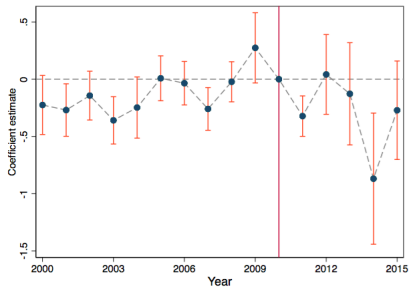
Panel F: Manufacturing



Panel G: Hotel & Accommodation

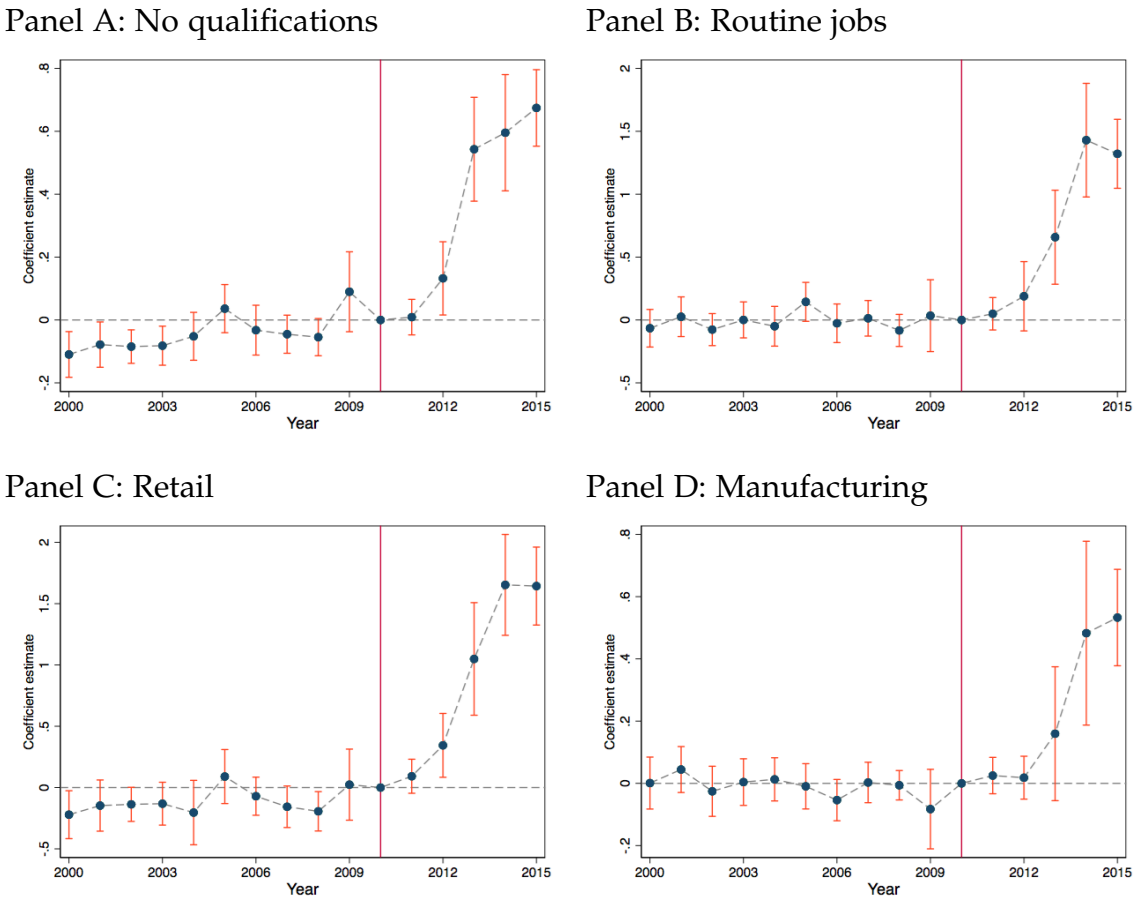


Panel H: Health care



Notes: The dependent variable is the percentage of votes for UKIP in local council elections. The independent variables are the respective shares of the resident working age population in a district that is working in any of the different sectors as of 2001 interacted with a set of year fixed effects. All regressions include local authority district fixed effects and NUTS1 region by year fixed effects. Standard errors are clustered at the district level with 90% confidence bands indicated.

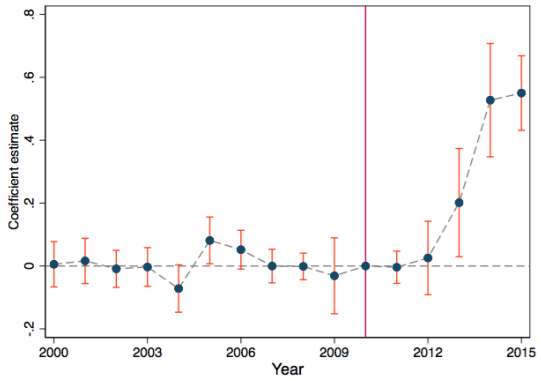
Figure A6: Robustness to balanced sample of elections – Non-parametric effect of educational qualification, socio-economic status, and sectoral employment of the resident population as of 2001 on support for UKIP over time



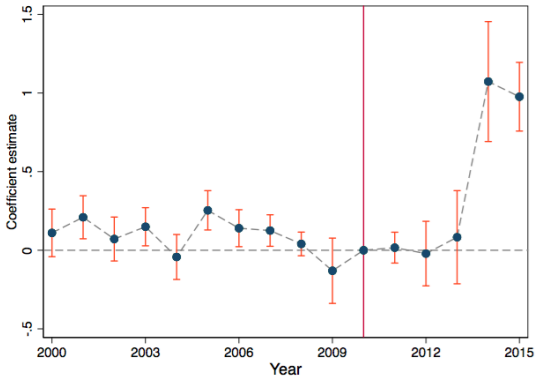
Notes: The dependent variable is the percentage of votes for UKIP in local council elections. The sample is restricted to only include elections where UKIP ran across districts in which UKIP contested at least 50% of the races. Panel A uses the share of the resident population with no formal qualifications as of 2001. Panel B uses the share of the resident population in Routine jobs as per the National Socio-Economic Classification of Occupations as of 2001. Panel C uses the share of the resident working age population employed in the Retail sector, while panel D uses the share of the resident working age population employed in Manufacturing. The graph plots point estimates of the interaction between these cross sectional measures and a set of year fixed effects. All regression include local authority district fixed effects and election wave by NUTS1 region by year fixed effects. Standard errors are clustered at the district level with 90% confidence bands indicated.

Figure A7: Robustness to controlling for more demanding time effects: Election wave by Region by Year – Non-parametric effect of educational qualification, socio-economic status, and sectoral employment of the resident population as of 2001 on support for UKIP over time

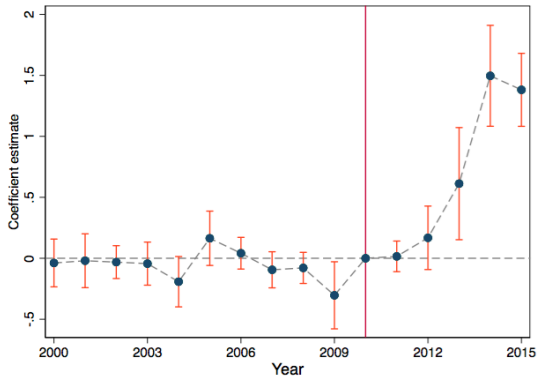
Panel A: No qualifications



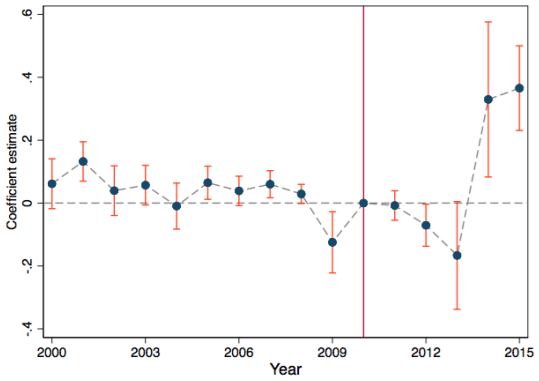
Panel B: Routine jobs



Panel C: Retail



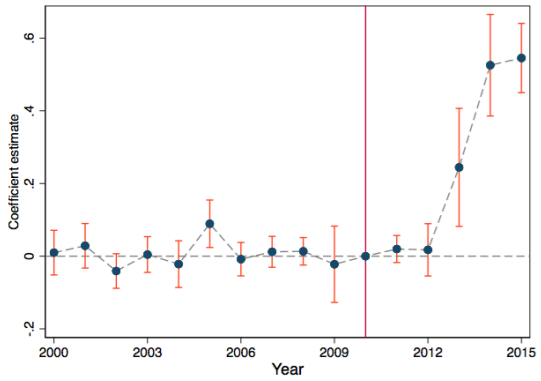
Panel D: Manufacturing



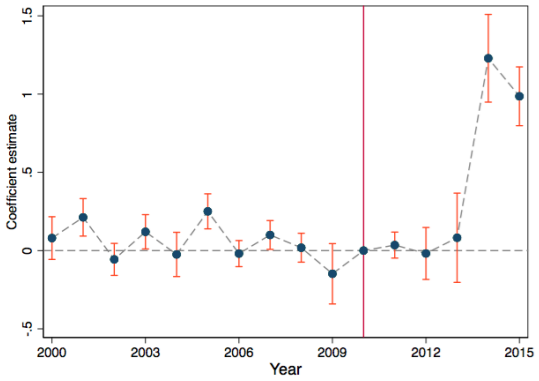
Notes: The dependent variable is the percentage of votes for UKIP in local council elections. Panel A uses the share of the resident population with no formal qualifications as of 2001. Panel B uses the share of the resident population in Routine jobs as per the National Socio-Economic Classification of Occupations as of 2001. Panel C uses the share of the resident working age population employed in the Retail sector, while panel D uses the share of the resident working age population employed in Manufacturing. The graph plots point estimates of the interaction between these cross sectional measures and a set of year fixed effects. All regression include local authority district fixed effects and election wave by NUTS1 region by year fixed effects. Standard errors are clustered at the district level with 90% confidence bands indicated.

Figure A8: Robustness to controlling for less demanding time effects: Year FE – Non-parametric effect of educational qualification, socio-economic status, and sectoral employment of the resident population as of 2001 on support for UKIP over time

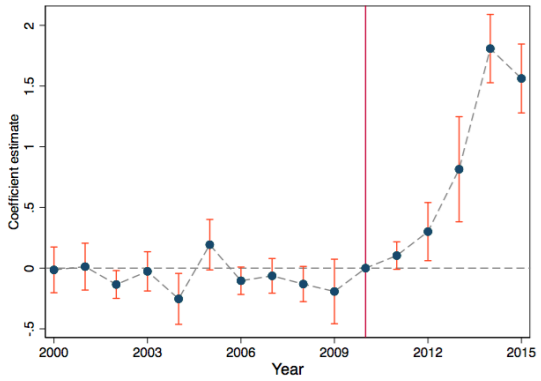
Panel A: No qualifications



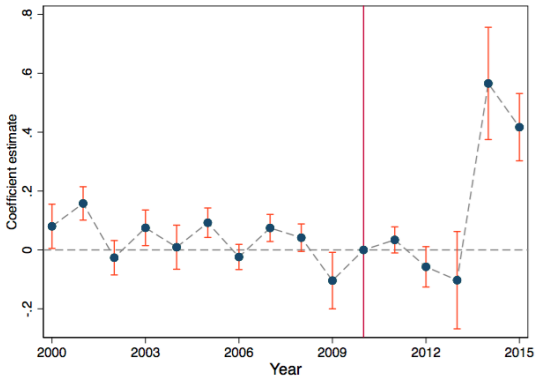
Panel B: Routine jobs



Panel C: Retail

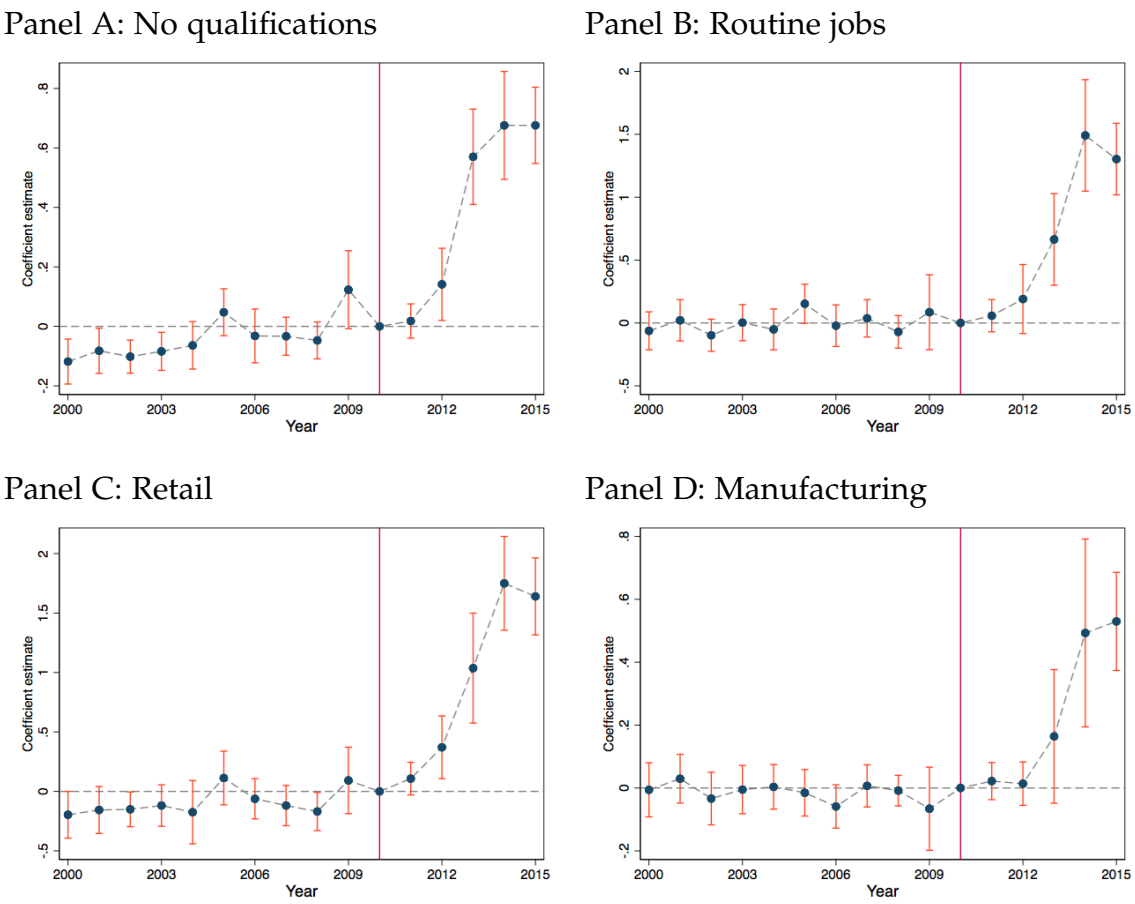


Panel D: Manufacturing



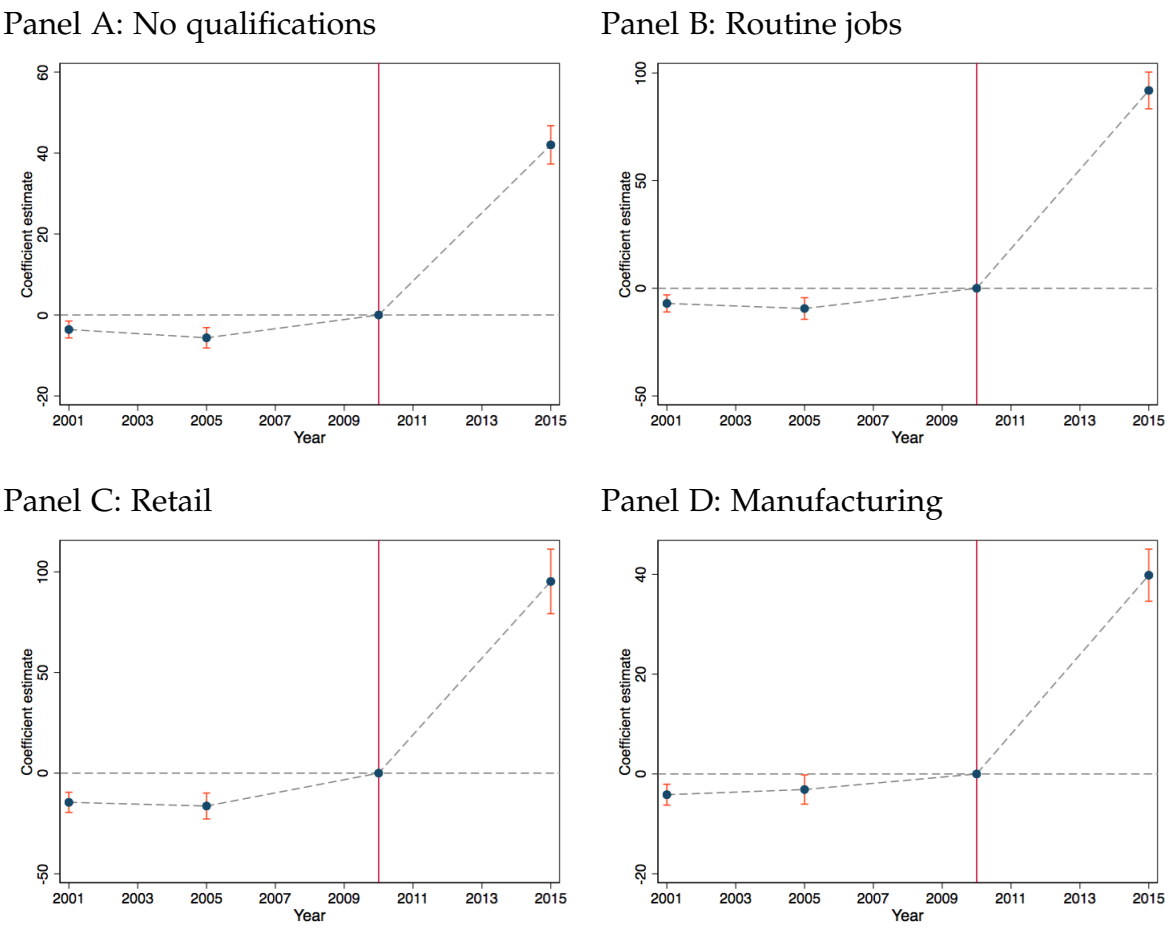
Notes: The dependent variable is the percentage of votes for UKIP in local council elections. Panel A uses the share of the resident population with no formal qualifications as of 2001. Panel B uses the share of the resident population in Routine jobs as per the National Socio-Economic Classification of Occupations as of 2001. Panel C uses the share of the resident working age population employed in the Retail sector, while panel D uses the share of the resident working age population employed in Manufacturing. The graph plots point estimates of the interaction between these cross sectional measures and a set of year fixed effects. All regression include local authority district fixed effects and year fixed effects. Standard errors are clustered at the district level with 90% confidence bands indicated.

Figure A9: Robustness to measurement of baseline characteristics - Focusing on UK born population shares – Non-parametric effect of educational qualification, socio-economic status, and sectoral employment of the resident population as of 2001 on support for UKIP over time



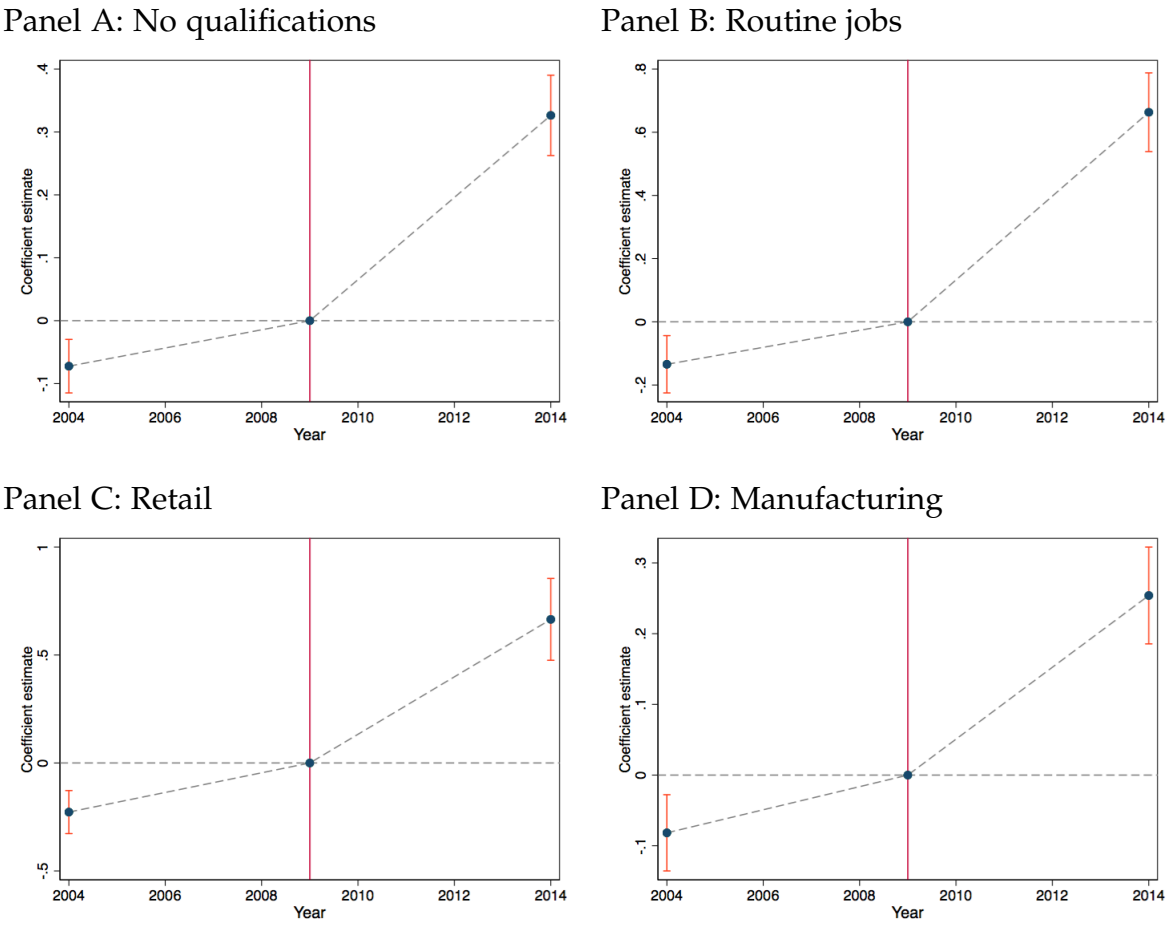
Notes: The dependent variable is the percentage of votes for UKIP in local council elections. Panel A uses the share of the UK born resident population with no formal qualifications as of 2001. Panel B uses the share of the UK born resident population in Routine jobs as per the National Socio-Economic Classification of Occupations as of 2001. Panel C uses the share of the UK born resident working age population employed in the Retail sector, while panel D uses the share of the UK born resident working age population employed in Manufacturing. The graph plots point estimates of the interaction between these cross sectional measures and a set of year fixed effects. All regression include local authority district fixed effects and NUTS1 region by year fixed effects. Standard errors are clustered at the district level with 90% confidence bands indicated.

Figure A10: Non-parametric effect of educational qualification, socio-economic status, and sectoral employment of the resident population as of 2001 on support for UKIP *in Westminster Parliamentary elections* from 2001 - 2015 over time



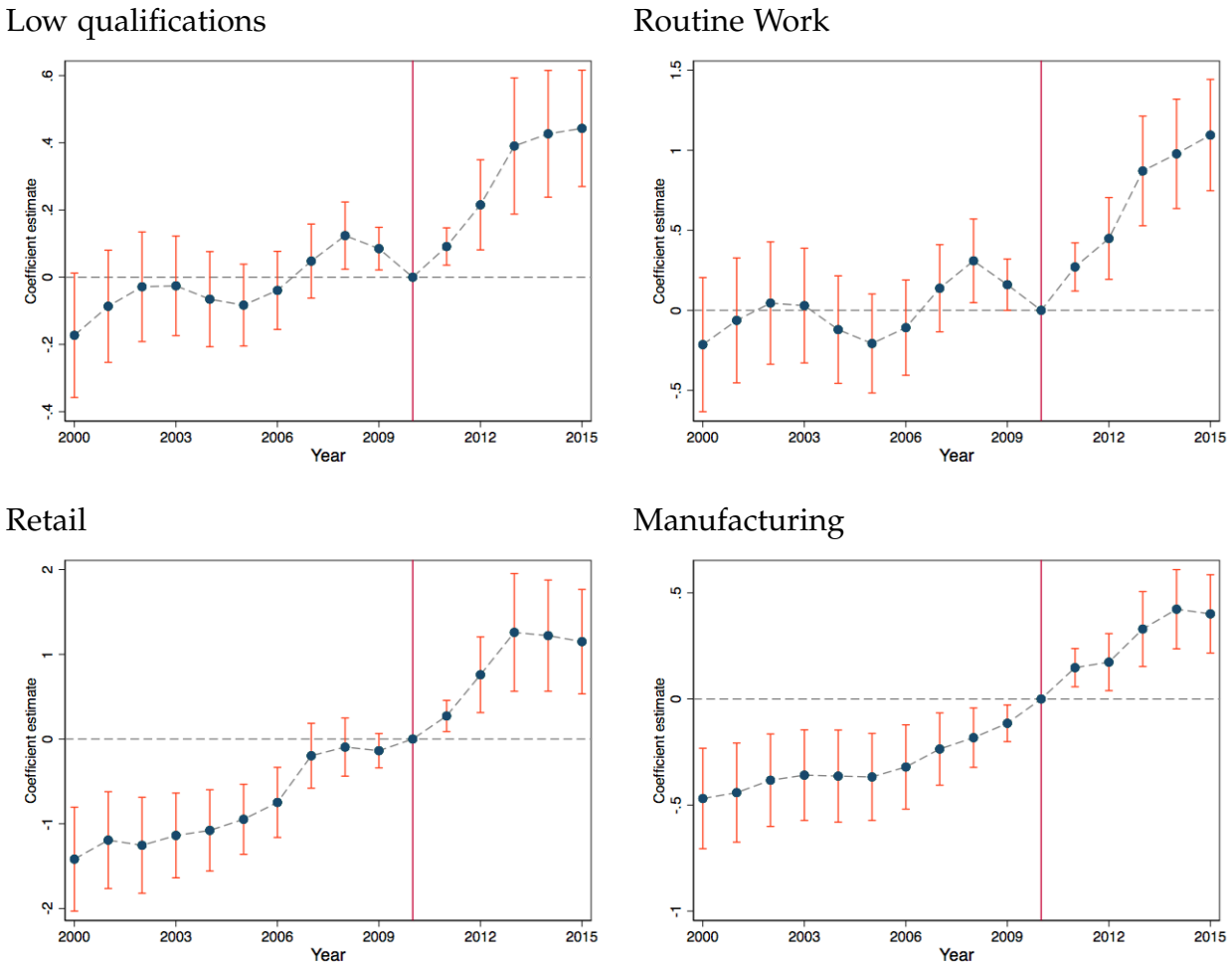
Notes: The dependent variable is the percentage of votes for UKIP in Westminster elections at the harmonized 2010 constituency level. Panel A uses the share of the resident population with no formal qualifications as of 2001. Panel B uses the share of the resident population in Routine jobs as per the National Socio-Economic Classification of Occupations as of 2001. Panel C uses the share of the resident working age population employed in the Retail sector, while panel D uses the share of the resident working age population employed in Manufacturing. The graph plots point estimates of the interaction between these cross sectional measures and a set of year fixed effects. All regression include local authority district fixed effects and election wave by NUTS1 region by year fixed effects. Standard errors are clustered at the district level with 90% confidence bands indicated.

Figure A11: Non-parametric effect of educational qualification, socio-economic status, and sectoral employment of the resident population as of 2001 on support for UKIP *in European Parliamentary elections* over time



Notes: The dependent variable is the percentage of votes for UKIP in European Parliamentary elections at the local authority district level. Panel A uses the share of the resident population with no formal qualifications as of 2001. Panel B uses the share of the resident population in Routine jobs as per the National Socio-Economic Classification of Occupations as of 2001. Panel C uses the share of the resident working age population employed in the Retail sector, while panel D uses the share of the resident working age population employed in Manufacturing. The graph plots point estimates of the interaction between these cross sectional measures and a set of year fixed effects. All regression include local authority district fixed effects and election wave by NUTS1 region by year fixed effects. Standard errors are clustered at the district level with 90% confidence bands indicated.

Figure A12: Growing reliance on welfare state: Nonparametric effects of weak fundamentals as of 2001 and growing reliance on income support payments



Notes: The dependent variable is the log of the number of income support claimants. The independent variable is a cross-sectional measure interacted with a set of year fixed effects for which we plot the estimated coefficients. The regression includes local authority fixed effects and NUTS1 region by year fixed effects. Standard errors are clustered at the district level, with 90% confidence bands indicated.

Figure A13: Cross correlations between different baseline socio-economic characteristics and the measure of import competition

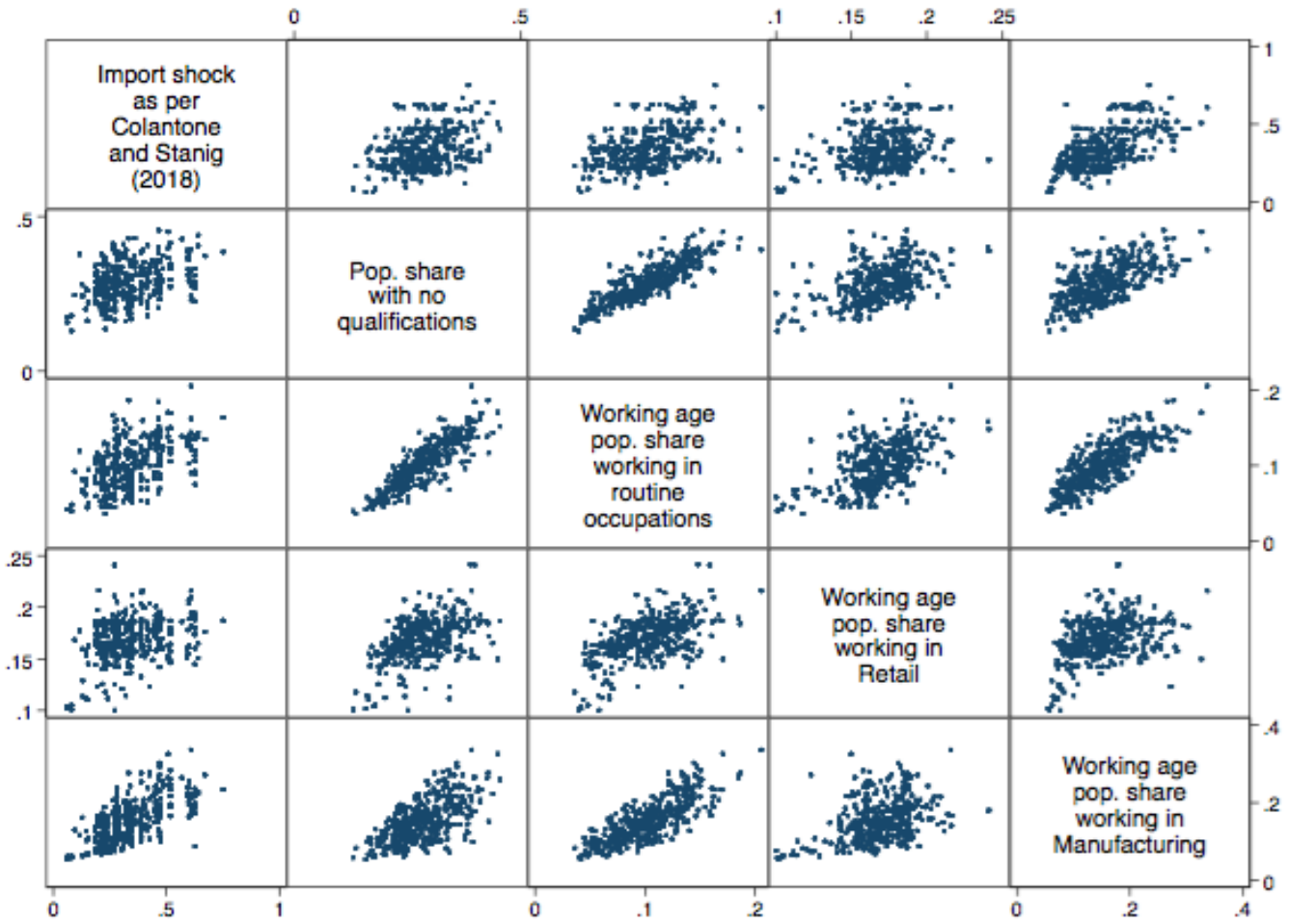
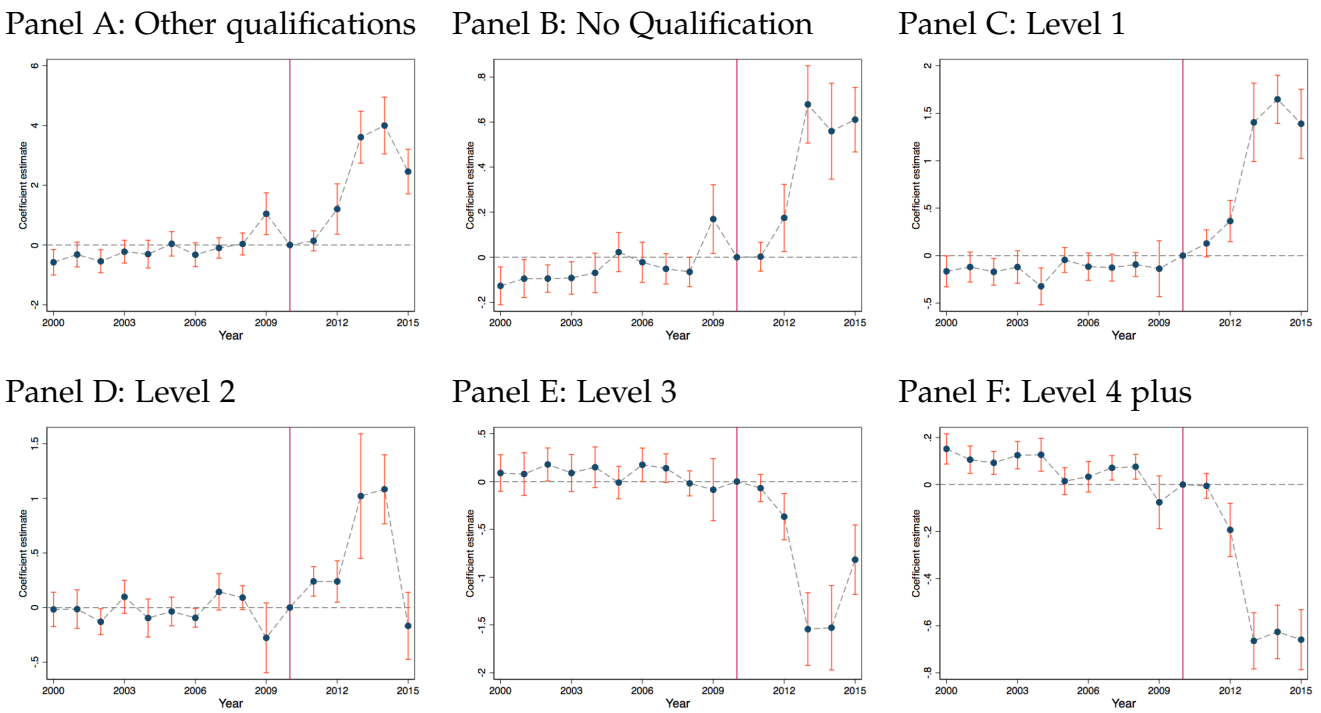
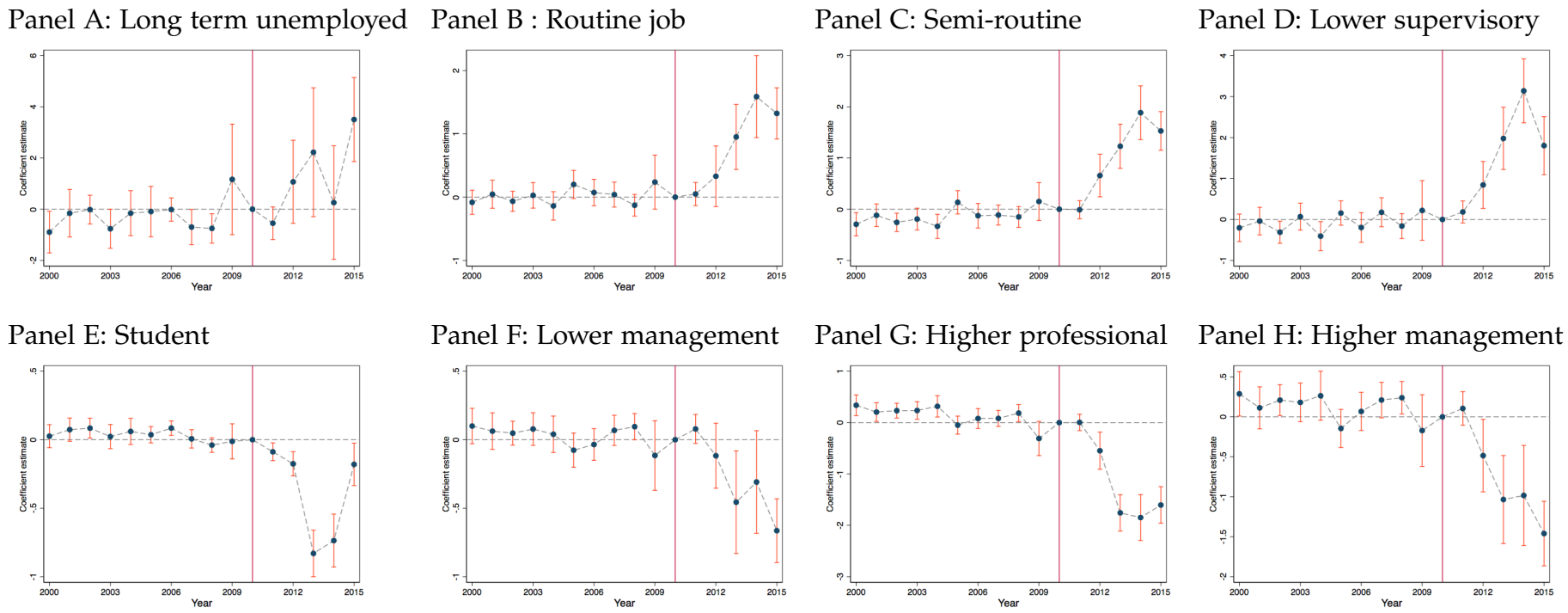


Figure A14: Non-parametric effect of educational qualification of the resident population in 2001 on support for UKIP over time *after partialing out non-linear time trends in manufacturing sector prevalence and import shock exposure*



Notes: The variable is the respective share of the resident population in a local authority district that has obtained the educational qualifications following the UK classification system, whereby No qualifications means no formal qualification or school leaving certificate, Level 1 stands for having between 1-4 General Certificate of Secondary Education (GCSE) qualifications, Level 2 stands for 5 GCSEs, Level 3 means having 2 or more A-levels (university qualifying), while level 4 or above captures having a university degree. Other qualifications includes apprenticeships and foreign qualification below a university degree. The graph plots point estimates of the interaction between these cross sectional measures and a set of year fixed effects. All regression include local authority district fixed effects and NUTS1 region by year fixed effects. Standard errors are clustered at the district level with 90% confidence bands indicated.

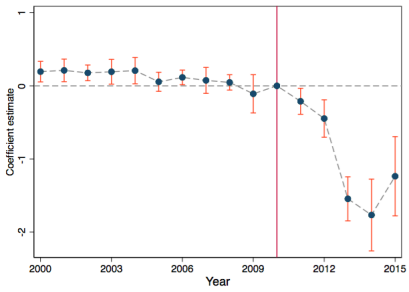
Figure A15: Non-parametric effect of socio-economic employment status of the resident population in 2001 on support for UKIP over time *after partialing out non-linear time trends in manufacturing sector prevalence and import shock exposure*



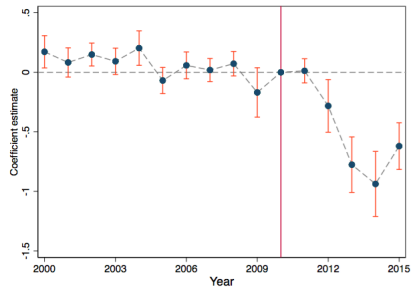
Notes: The variable is the respective share of the resident population in a district that is in either socio-economic status classification as of 2001. The graph plots point estimates of the interaction between these cross sectional measures and a set of year fixed effects. All regression include local authority district fixed effects and NUTS1 region by year fixed effects. Standard errors are clustered at the district level with 90% confidence bands indicated.

Figure A16: Non-parametric effect of the working age resident population'ss industry employment structure in 2001 on support for UKIP over time *after partialing out non-linear time trends in manufacturing sector prevalence and import competition*

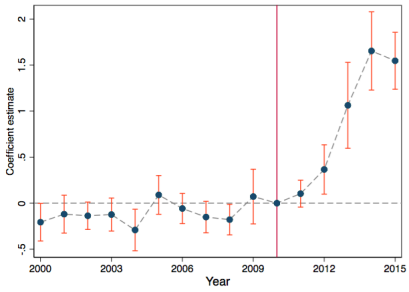
Panel A: Education



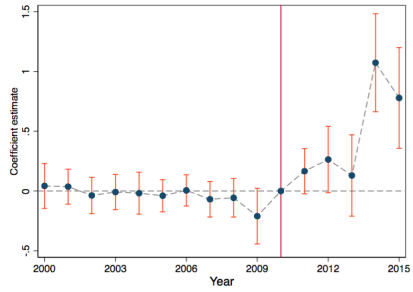
Panel B: Real Estate



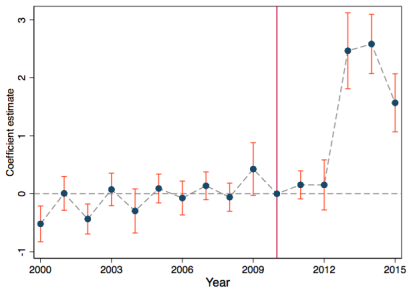
Panel C: Retail



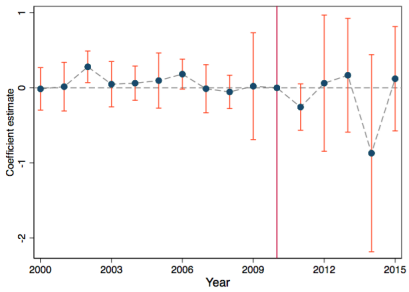
Panel D: Transport



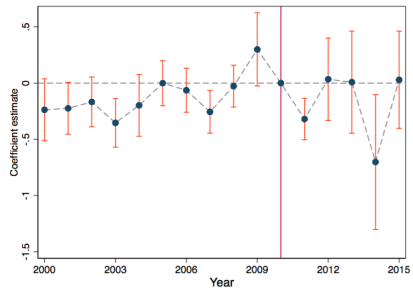
Panel E: Construction



Panel G: Hotel & Accommodation

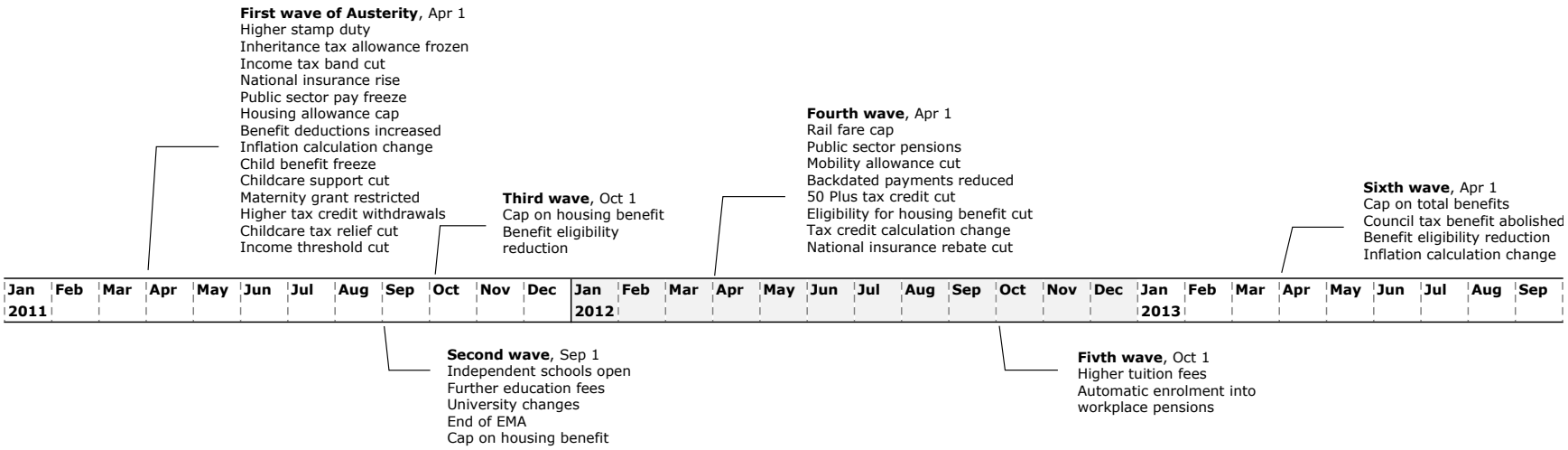


Panel H: Health care



Notes: The dependent variable is the percentage of votes for UKIP in local council elections. The independent variables are the respective shares of the resident working age population in a district that is working in any of the different sectors as of 2001 interacted with a set of year fixed effects. All regression include local authority district fixed effects and NUTS1 region by year fixed effects. Standard errors are clustered at the district level with 90% confidence bands indicated.

Figure A17: Main welfare, services and tax-based austerity measures between 2010 and 2015.



Notes: Timeline of when different austerity measures started to be implemented. This list does not claim to be comprehensive, as many further measures such as the intensification of imposition of benefits sanctions is difficult to capture. The first wave of austerity measures was announced in the Autumn budget of 2010, but they only started to take effect with the start of the new fiscal year from April 2011. A short description on each of the measures is presented in Appendix Tables A5 and A6.

Table A2: Summary statistics

Variable	Mean	Std. Dev.	N
Percentage of Votes for UKIP	0.045	0.076	3290
Income Support claimants per capita	0.034	0.024	3806
Job Seeker Allowance claimants per capita	0.017	0.01	3806
Human capital			
Pop. share with No qualifications (2001)	0.286	0.062	5536
Pop. share with Level 1 qualifications (2001)	0.17	0.025	5536
Pop. share with Level 2 qualifications (2001)	0.2	0.023	5536
Pop. share with Level 3 qualifications (2001)	0.08	0.021	5536
Pop. share with Level 4 and above qualifications (2001)	0.193	0.072	5536
Pop. share with Other qualifications (2001)	0.071	0.011	5536
NSSec Employment Status			
Working age Pop share working in Higher management (2001)	0.04	0.016	5536
Working age Pop share working in Higher professional occupations (2001)	0.055	0.023	5536
Working age Pop share working in Lower management (2001)	0.212	0.036	5536
Working age Pop share working in Intermediate occupations (2001)	0.105	0.018	5536
Working age Pop share working in Small or own establishments (2001)	0.083	0.025	5536
Working age Pop share working in Lower supervisory occupations (2001)	0.083	0.017	5536
Working age Pop share working in Semi routine occupations (2001)	0.132	0.024	5536
Working age Pop share working in Routine occupations (2001)	0.102	0.03	5536
Working age Pop share that Never worked (2001)	0.025	0.016	5536
Working age Pop share that is Long Term Unemployed (2001)	0.01	0.005	5536
Working age Pop share that is Studying (2001)	0.072	0.031	5536
Sectoral Employment Break down			
Working age Pop share working in Agriculture (2001)	0.019	0.019	5536
Working age Pop share working in Mining (2001)	0.003	0.003	5536
Working age Pop share working in Manufacturing (2001)	0.154	0.054	5536
Working age Pop share working in Utility (2001)	0.007	0.004	5536
Working age Pop share working in Construction (2001)	0.07	0.014	5536
Working age Pop share working in Retail (2001)	0.169	0.021	5536
Working age Pop share working in Hotel and Accommodation (2001)	0.048	0.015	5536
Working age Pop share working in IT and Transport (2001)	0.069	0.021	5536
Working age Pop share working in Finance and Insurance (2001)	0.044	0.025	5536
Working age Pop share working in Real Estate (2001)	0.125	0.045	5536
Working age Pop share working in Public sector (2001)	0.058	0.022	5536
Working age Pop share working in Education (2001)	0.077	0.016	5536
Working age Pop share working in Health Care (2001)	0.107	0.02	5536
Measures focusing on UK born resident population			
UK born working age pop share working in Manufacturing (2001)	0.154	0.053	5536
UK born working age pop share working in Retail (2001)	0.17	0.021	5536
UK born working age pop share working in Routine Occupations (2001)	0.102	0.031	5536
UK born pop share with No Qualifications (2001)	0.285	0.061	5536

Table A3: Where do UKIP voters post 2010 come from? Studying European Parliamentary elections

			Other parties		
	UKIP	Turnout	Con	Lab	LD
	(1)	(2)	(3)	(4)	(5)
Panel A: No qualifications					
Post 2010 x Pop. share with No qualifications (2001)	0.363***	0.167***	-0.166***	0.180***	0.000
	(0.041)	(0.032)	(0.025)	(0.048)	(0.023)
Mean of DV	.224	.369	.282	.191	.116
Local election districts	346	346	346	346	346
Observations	1038	1038	1038	1038	1038
Panel B: Routine jobs					
Post 2010 x Working age Pop share working in Routine occupations (2001)	0.731***	0.294***	-0.255***	0.213**	0.050
	(0.078)	(0.062)	(0.051)	(0.083)	(0.043)
Mean of DV	.224	.369	.282	.191	.116
Local election districts	346	346	346	346	346
Observations	1038	1038	1038	1038	1038
Panel C: Retail					
Post 2010 x Working age Pop share working in Retail (2001)	0.779***	0.268***	-0.322***	0.067	0.079
	(0.116)	(0.095)	(0.064)	(0.131)	(0.061)
Mean of DV	.224	.369	.282	.191	.116
Local election districts	346	346	346	346	346
Observations	1038	1038	1038	1038	1038
Panel D: Manufacturing					
Post 2010 x Working age Pop share working in Manufacturing (2001)	0.295***	0.019	-0.020	0.067	0.019
	(0.044)	(0.046)	(0.029)	(0.055)	(0.035)
Mean of DV	.224	.369	.282	.191	.116
Local election districts	346	346	346	346	346
Observations	1038	1038	1038	1038	1038

Notes: All regressions control for state by time fixed effects and local government area (LGA) fixed effects. Standard errors are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A4: Where do UKIP voters post 2010 come from? Studying Westminster Parliamentary elections

			Other parties		
	UKIP	Turnout	Con	Lab	LD
	(1)	(2)	(3)	(4)	(5)
Panel A: No qualifications					
Post 2010 x Pop. share with no qualifications	44.816***	-5.424**	-28.815***	-8.743**	15.998***
	(3.006)	(2.129)	(2.974)	(4.069)	(3.295)
Mean of DV	6.03	62.9	35.9	35.8	18.1
Harmonized constituencies	566	573	573	573	573
Observations	2047	2285	2283	2283	2283
Panel B: Routine jobs					
Post 2010 x Working age pop. share working in routine occupations	96.878***	-29.340***	-27.619***	-58.484***	26.620***
	(5.396)	(3.607)	(6.600)	(7.960)	(6.591)
Mean of DV	6.03	62.9	35.9	35.8	18.1
Harmonized constituencies	566	573	573	573	573
Observations	2047	2285	2283	2283	2283
Panel C: Retail					
Post 2010 x Working age pop. share working in Retail	105.018***	-35.603***	-15.902*	-81.719***	23.520**
	(10.381)	(4.952)	(8.871)	(11.848)	(9.592)
Mean of DV	6.03	62.9	35.9	35.8	18.1
Harmonized constituencies	566	573	573	573	573
Observations	2047	2285	2283	2283	2283
Panel D: Manufacturing					
Post 2010 x Working age pop. share working in Manufacturing	42.112***	-20.545***	-1.271	-36.274***	15.915***
	(3.323)	(2.020)	(3.965)	(4.718)	(3.723)
Mean of DV	6.03	62.9	35.9	35.8	18.1
Harmonized constituencies	566	573	573	573	573
Observations	2047	2285	2283	2283	2283

Notes: All regressions control for state by time fixed effects and local government area (LGA) fixed effects. Standard errors are adjusted for two way clustering by time and LGA with stars indicating *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A5: Main Austerity measures involving cuts to benefits and transfers in 2011

Effective	Description
Apr 2011	**Higher stamp duty** – Introduction of a new 5 per cent stamp duty band on homes worth more than GBP 1m, a 25 per cent increase for houses of this value
Apr 2011	**Inheritance tax allowance frozen** –The inheritance tax allowance is frozen at GBP 325,000 until 2014/15. The tax is levied at 40 per cent on estates over that value
Apr 2011	**Income tax band cut** –Rate at which you start paying 40 per cent income tax falls from GBP 43,875 to GBP 42,475 (meaning an extra 20 per cent tax on GBP 1,400 of income)
Apr 2011	**National insurance rise** –National insurance rates go up 1 per cent.
Apr 2011	**Public sector pay freeze** –Pay freeze for public sector workforces for two years begins
Apr 2011	**Housing allowance cap** –Local housing allowance rate to be capped at GBP 250 a week fora one-bed property, GBP 400 a week for four bedrooms or more
Apr 2011	**Benefit deductions increased** –Benefit deductions for non-dependents will be increased, meaning claimants who have adult children living with them will be hit
Apr 2011	**Inflation calculation change** –Local housing allowance is uprated by CPI rather than local rents, potentially resulting is a disconnect with local market rates
Apr 2011	**Child benefit freeze** –Universal child benefit is frozen at current levels for three years, at GBP 20.30 for a first or only child and GBP 13.40 for each other child, resulting in a drop in value in real terms
Apr 2011	**Childcare support cut** –Cut of 10 per cent in the childcare support provided under tax credits
Apr 2011	**Maternity grant restricted** –The payment of the GBP 500 SureStart maternity grant is restricted to the first child only
Apr 2011	**Higher tax credit withdrawals** –Withdrawal rate (the amount deducted when income exceeds a certain limit) for tax credits increased to 41 per cent
Apr 2011	**Childcare tax relief cut** –The weekly amount parents joining an employer-supported childcare scheme will be able to claim exempt of income tax and national insurance contributions will remain at GBP 55 for basic rate taxpayers but cut to GBP 28 and GBP 22 per week for higher and additional rate taxpayers respectively
Apr 2011	**Income threshold cut** –The second income threshold for the family element of the child tax credit falls from GBP 50,000 to GBP 40,000. The baby element, which was worth up to GBP 545 to families with a new baby, is abolished
Sep 2011	**Free schools open** –The opening of free schools will cause debate about capital cuts to rest of schools estate
Sep 2011	**Further education fees** –People on "non-active" benefits start paying full fees for FE courses
Sep 2011	**University changes** –Universities start the last intake of the old system in Sep/Oct. Further cuts to the universities budget kick in
Sep 2011	**End of EMA** –Educational maintenance allowance, worth GBP 30 a week for low income students aged 16-18 who stay in education, is withdrawn
Oct 2011	**Cap on housing benefit** –The local housing allowance rate is set at the 30th percentile (the lowest 30 per cent) of local rents
Oct 2011	**Benefit eligibility reduction** –Lone parents whose youngest child is aged five or over will be eligible for job seekers' allowance, rather than income support, meaning they will be obliged to search fora job or lose benefits

Table A6: Main Austerity measures involving cuts to benefits and transfers in 2012 and 2013

Effective	Description
Apr 2012	**Rail fare cap** –Cap on rail fares rises to RPI inflation plus 3 per cent
Apr 2012	**Public sector pensions** –Average 3 per cent rise in employee contributions to public sector pensions; distribution of that yet to be announced. At some point thereafter a switch from final salary to career average pensions is likely
Apr 2012	**Mobility allowance cut** –The mobility component of the disability living allowance is removed for disabled people living in state care homes
Apr 2012	**Backdated payments reduced** –The period for which a tax credit claim and certain changes of circumstances can be backdated will be reduced from three months to one month
Apr 2012	**50 Plus tax credit cut** –The 50 Plus element of tax credits (designed to help older workers returning to the labour market) is cut
Apr 2012	**Eligibility for housing benefit cut** –Young people aged 25-34 are no longer eligible for full housing benefit and will only receive a shared-room rate
Apr 2012	**Tax credit calculation change** –A new disregard for falls of income is introduced to the tax credit system, meaning families whose income falls over the year will have the first GBP 2,500 of their new lower income disregarded when their award is re-calculated
Apr 2012	**National insurance rebate cut** –Cut in national insurance rebate for defined benefit pension schemes. Will add to the costs employers face for providing them
Oct 2012	**Higher tuition fees** –Students start paying higher tuition fees of up to GBP 9,000 a year
Oct 2012	**Automatic enrolment into workplace pensions** –Initially 1 per cent employer and 1 per cent employee contributions, starting with large firms. Medium ones brought in from Apr 2014 and small ones starting in August 2014. Full minimum contribution of 3 per cent from employers and 5 per cent from employees reached in Oct 2017
Jan 2013	**Cap on child benefit eligibility** –Child benefit will be removed from families with at least one parent earning more than about GBP 44,000 a year
Apr 2013	**Cap on total benefits** –A new cap on the total amount of benefit people can receive to ensure they never get more than the average working family brings home in pay - estimated at about GBP 26,000 a year - is introduced. This would mean benefits would be restricted to GBP 500 a week from 2013, a change thought to affect 50,000 households, which would lose an average of GBP 93 a week
Apr 2013	**Council tax benefit abolished** –Centrally administered council tax benefit is abolished and responsibility devolved to local authorities
Apr 2013	**Benefit eligibility reduction** –Social housing entitlements are limited to reflect size of family
Apr 2013	**Inflation calculation change** –Local housing allowance is uprated by CPI rather than local rents, potentially resulting is a disconnect with local market rates